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HIGH TIMES

October 453



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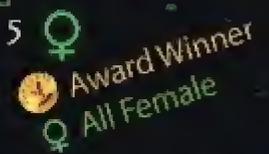
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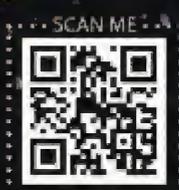
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HIGH TIMES OCTOBER



It grew like a stumpy oak tree, with leaflets that were so fat they covered each other and blocked light from the bottom almost entirely. Obviously, I kept this strain and renamed it—what else?—the Bubba.

—The Birth of Bubba Kush, page 62

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Thousands attended the fourth High Times Medical Cannabis Cup in San Francisco to join in celebrating California's best buds.

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Does the idea of a cocaine submarine conjure a Scarface-like elegance in a nautical setting? The truth is these boats would make Captain Bligh's vessel seem like a luxury cruiseliner.
By Craig Stephens

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The saga of Bubba Kush is a sweeping story, an epic tale of growers meeting and cross-breeding their prized possessions and, in time, creating a superstar. *By Dan Skye*

72 Get Vent!

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Chemists and pharmacologists have discovered the trick to making any psychedelic drug as powerful as LSD. Over 20 variants of these super-potent molecules are showing up on the street as "research chemicals", designer drugs made in underground labs or ordered from grey-market suppliers over the Internet. And this is only the beginning. *By James L. Kent*

90 High Times Interview: Ross Rebagliati

In 1998, Ross Rebagliati was the first to win Olympic Gold for the new category of snowboarding; he then found himself in the middle of a scandal when he tested positive for pot. *By Joe Giambone*



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HIGH TIMES DIGITAL

► Glass Artist of the Month

The career of glass artist Carsten Carlile began with a broom in Eugene, OR. He'd taken several jobs to put himself through college, one of which was helping clean up in a local glass shop. He recalls "immediately being drawn to blowing glass."

He began working with a torch in September 1995. Within six months, he was hooked and realized that he'd found his calling. He left college—and his subsistence jobs—to pursue glassblowing full-time for himself. In the years to follow, he honed his skills, learning from top artists and then even teaching along the way.

He cites nature and form as the strongest influences in his work. "I love bringing life to the torch," Carsten says. "Skeletons, Volkswagens, characters and figurines have all been catalysts for my continued growth as an artist. For me, blowing glass is a lifestyle. It's a daily practice in hard work, creativity, craftsmanship and self-discovery. I love this life, I love this medium and I will always be learning and pushing its limits."

He now works from his shop in Bend, OR. "No better place to call home," Carsten says happily.



Carsten Carlile creates art at his shop in Bend, OR.



► Jen at moe.down

Catch up on all of the hot summer concert happenings on *Jen's Music Stash*. Managing editor Jen Bernstein covers the marijuana music scene on her podcast featuring interviews with headliners from the moe.down music festival in August. [Listen at http://bit.ly/theStash](http://bit.ly/theStash) Follow @jbmusicstash

► Weekly Photo Contest

Did you know that we run a weekly photo contest in our newsletter? Every week a photographer with a camera—or a cell phone—wins an allotment of cool stoner prizes for submitting an exquisite expression of the stoner world. Subscribe to the newsletter and enter your pot-themed photo in the Top Hot Pot Shot of the Week photo competition. [Subscribe at hightimes.com/newsletter](http://hightimes.com/newsletter)

POT POLL

The Dab Question

As we go to press, we've just posted our newest poll. We asked whether you prefer dabs (hash concentrates) or buds, or whether you've even tried an actual dab. Now, of course, our readers are more tuned in to new trends in pot culture. Having said that, the early results showed virtually equal numbers in both dab and bud camps. But a over a third of respondents say they've never dabbled, which means two-thirds of you out there are still smoking buds. We'll ask the same question again in a year and see if the numbers change.

Check out hightimes.com/polls and cast your vote in our latest poll.

34%...I like buds best
31%...I like dabs best
35%...I've never tried dabs



Miss October 2013

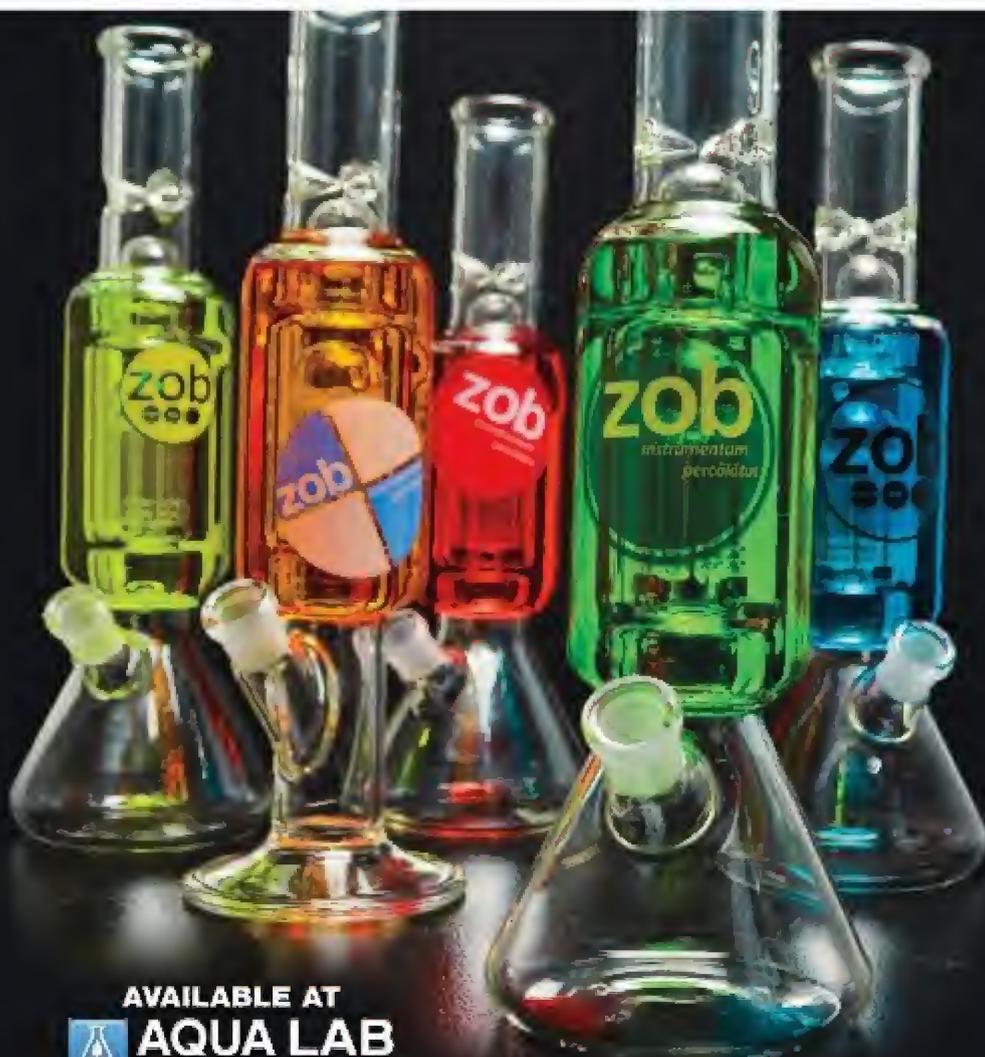
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A Bad Night in Florida Made Worse

The newspapers are carrying a story about how George Zimmerman's defense team, in an attempt to save their client's cowardly ass from the prison cell he certainly deserves, will be allowed to introduce evidence to the jury that Trayvon Martin, the young man Zimmerman stalked, confronted and killed on a dark road in Sanford, Florida early last year, had "small amounts" of marijuana in his bloodstream. At the time of the incident, Zimmerman was on Adderall, the amphetamine cocktail commonly prescribed for Attention Deficit Disorder.

You would have to build a time machine and go back to the Reefer Madness days of the 1930s to find any sane individual who believes that marijuana causes aggressive behavior. That is not the point Zimmerman's attorneys are trying to make. What

they are hoping to do in introducing this evidence is taint the jury's mind with the idea that Trayvon Martin was an illegal drug user. It's the final detail needed to complete an image that strikes fear into the hearts of many Americans—that of a stoned black teenager in a hoodie walking down a dark street. In that light, well... maybe Zimmerman had a reason to follow him, right?

Fuck no. Zimmerman, of the Twin Lakes Neighborhood Watch, provoked a fight that he would have lost had he not pulled his gun. Amphetamine will make you obsessive and a bit paranoid, and Zimmerman's behavior on that night bears that out. Marijuana might make you hungry for an iced tea and a bag of Skittles, possibly explaining why Trayvon was on the street—but it was shortly after 7 p.m., and the kid didn't really need an excuse.

Personally, I am more afraid of a tweaker with a gun than I am of a pot-head with a bag of Skittles, but judging by the way this case has polarized opinions, I would estimate that only 50 percent of Americans agree with me. And it only takes one out of the six jurors assigned to the Zimmerman case (five white, one "minority," all female) for a not-guilty verdict. The Zimmerman defense team is rolling the dice by introducing Trayvon's marijuana use at trial. The true shame is that the odds are on their side.

If there's any lesson to be learned here, it's that as long as marijuana remains illegal, the stigma of being an illegal drug user will taint the marijuana consumer, thus allowing his or her right to life, liberty and the pursuit of ganja-fueled happiness to be walked on by deluded citizens, potentially with impunity. I can't speak for everyone at *High Times*, but I personally hope that justice prevails in Florida in the coming weeks, and that Trayvon's killer does not go unpunished. If I were a betting man, I'd say the odds are about 50/50.

Sincerely,

Chris Simunek
Editor In Chief



**Amphetamine vs. cannabis:
A tale of two drugs**

HIGH TIMES

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Why So High?

I read with interest your article “Earth’s Strongest Strains” (June ’13). While I think it’s great that some growers are constantly pushing the envelope and breeding stronger and stronger cannabis strains, I worry that they might be alienating some newer smokers—well, actually some newer *older* smokers.

Smoking weed is becoming much more socially acceptable, if recent polls are any indication. And some folks who haven’t smoked in many years are coming back to the fold, hoping to rekindle their fond memories of passing a joint around, sharing stories across a campfire.

But imagine if one of these older smokers takes a deep toke of some of this new 24% THC pot. They’d be more likely to pass out *in* the campfire than tell a good story. The streets of Amsterdam are littered with dazed tourists who got more than they bargained for in their first visit to a coffeehouse.

There’s a generation out there who would rather spend their evenings sipping fine wine than pounding Jägermeister shots. It’s the same with weed. Rather than trying to get as wasted as possible as quickly as possible, sometimes it’s nice to get a good buzz simmering on a lazy afternoon.

So, breeders and growers, I urge you to keep growing the stronger stuff, but don’t neglect the “classic” consumer, who might be more interested in taste, aroma and the overall social experience—as opposed to general anesthesia.

Skyguy

Concerns With Concentrates

“Generation Dab” (July ’13) was a great read and touched on many important issues regarding concentrates. These products are exploding in popularity around the Detroit area. I haven’t tried dabbing yet for some of the reasons you mentioned. Like most patients in Michigan, I have no idea where my stuff comes from. Legal growers, limited in the number of plants they can grow, have little incentive to use clean plant material to make concentrates or to always grow using safe chemicals. Growers want maximum yields and no wasted product; meanwhile, patients who frequent dispensaries want to get in and out quickly, and very few ask questions about where their medicine came from. As a result, fake strains and suspect concentrates are ubiquitous.

Despite the law initiated and passed



There's a generation out there who would rather spend their evenings sipping fine wine than pounding Jägermeister shots. It's the same with weed.

directly by the voters of Michigan, medical cannabis is still in a legal gray area, and paranoia runs deep. Couple this with the fact that there is no regulatory body to enforce quality standards in the industry (there are no quality standards to begin with, so we need to start there). This environment creates a market where profits can be maximized by creating concentrates from trimmings, leaves and inferior flowers (i.e., moldy, buggy, etc.) that would otherwise be considered garbage. Likewise, it gives growers an incentive to use any kind of chemical that will easily maximize yields, kill bugs, add flavor or cause the plant to look good. There are a few labs around here, but the truth is that they operate to facilitate product marketing rather than safety. Most patients aren’t aware of this, or don’t want to think about it. In comparison, California has many reputable testing labs, and Colorado has introduced laws to ensure product safety.

Thankfully, the political winds are shifting. I look forward to the time when my state recognizes that the cannabis industry has the potential to invigorate the economy. Lawmakers need to wake up to this and help the industry move forward rather than blocking the will of the citizens they claim to represent.

Steve

Send your letters to
Feedback c/o
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High Times in Denver!

Several of my friends and I drove from Joplin, MO, to Denver for the US Cannabis Cup. I had purchased the two-day general-admission tickets, but was unable to attend the first day due to being late getting into town.

By the time my friend and I showed up on Sunday, someone had apparently stolen my phone. This was made even worse by the fact that our tickets were on my phone and I was unable to remember my email password.

After briefly speaking with security, we were sent to talk to the people sitting at the table handing out wristbands. I told them our sob story, hoping that they would be able to help. That was when they truly surprised us: After hearing our story, one of them said, “Turn those frowns upside down” and handed us VIP wristbands!

I am truly amazed that an organization as large as *High Times* is as caring as it is and would like to say thank you to everyone involved.

Our world could seriously use more organizations with a heart like yours.

Thomas

I Invented High Times!

I just thought I would pass this along. Not trying to take anything away from the founder or anyone else but, I think I might have been the inspiration for *High Times*. This week in Denver was the first time I heard of the publication, and I just had to write someone. In 1973 in a classroom at Hamilton Jr. High in Denver, our teacher asked us to design a magazine, and mine was called *High Times*. The cover featured a picture of either Beethoven or Einstein, and there was a fake joint on one side made of pencil shavings and a picture of a syringe on the other. *High Times* was laid out with “High” on top and “Times” on the bottom with several articles about drugs and rock & roll and some comics, one of which was the Fabulous Furry Freak brothers. I know this is crazy after 40 years, but I just wanted to pass this along. I thought it was bizarre so I wanted to send an email to see your thoughts!

Jeff

Thanks for the story, but we doubt our founder, Tom Forçade, spent any time in or around your junior high school. That said, it is an interesting coincidence.



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October 2013 *High Times*

13

FRENZY IN THE BAY Giveaways thrown to the crowd during the Homegrown Party presented by The Cali Connection at the fourth annual High Times San Francisco Medical Cannabis Cup included Cloud Vaporizers, Grassroots hats, and joints of some of Cali's finest buds accompanied by an unforgettable performance from Wu-Tang Clan members GZA, Ghostface Killah and Raekwon. See page 45 for more coverage. *Photo by Jerry Krecicki*

**Contact
High**

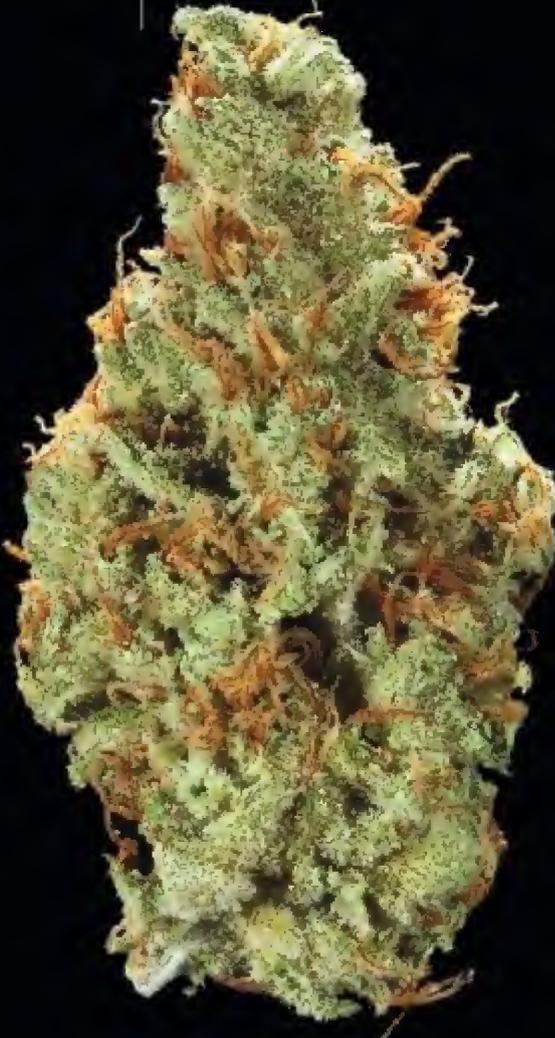
CRACKER JACK

1st Place *Sativa*
Santa Cruz Mountain Naturals



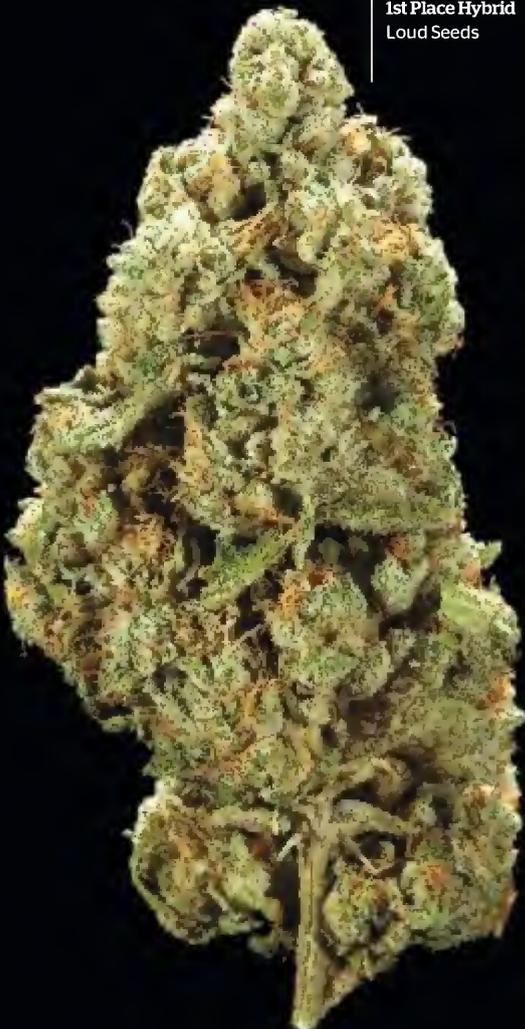
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2nd Place *Sativa*
Leonard Moore Co-op



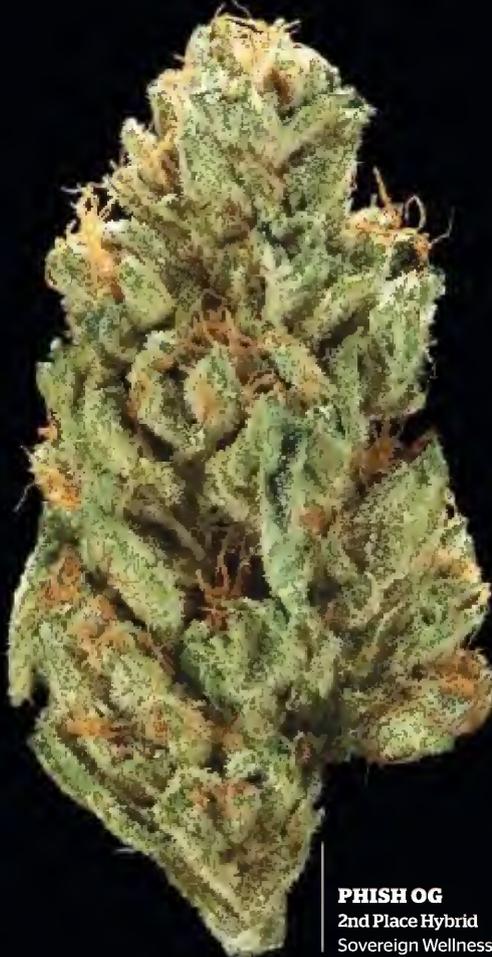
HEADBAND

1st Place *Hybrid*
Loud Seeds



TANGIE

3rd Place *Sativa*
BAMF Extractions



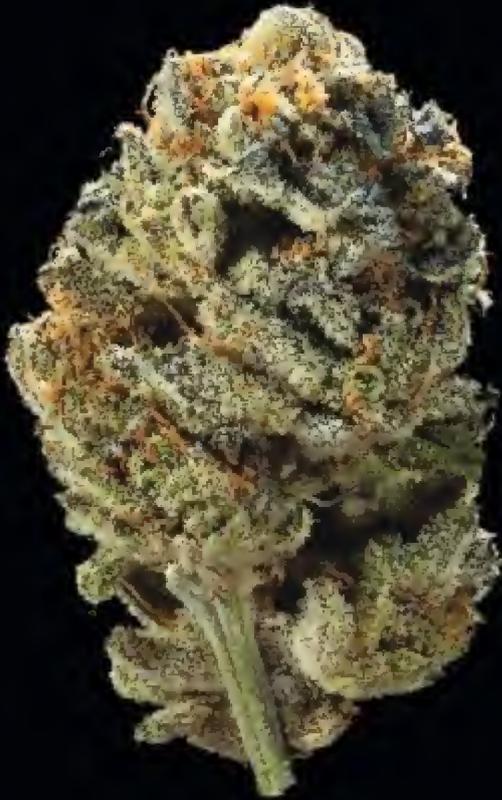
PHISH OG

2nd Place *Hybrid*
Sovereign Wellness Center

VEGANIC PLATINUM GIRL SCOUT COOKIES

3rd Place *Hybrid*
Buds and Roses & Private Stock LA

GIRL SCOUT COOKIES
1st Place *Indica*
Berkeley Patients Group



OG EDDY LEPP
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3rd Gen Family



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October 2013 *High Times*

THE BAY'S BEST BUDS & CONCENTRATES The winners of the fourth annual High Times Medical Cannabis Cup in San Francisco exemplify California's head start in marijuana culture and horticulture. A long tradition of pot cultivation and hash oil production techniques resulted in these connoisseur-quality entries. *Photos by Lochfoot*

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ONE GIANT FIELD FOR MANKIND Green House Seeds' never-ending search for great ganja genetics leads them to some amazing indigenous pot farms. Here the Strain Hunters Arjan and Franco show off their Powder Feeding nutrients, which are quickly revolutionizing marijuana growing worldwide and will soon be available in the US. See page 54 for more amazing pics and our preview of the 26th Cannabis Cup in Amsterdam. *Photo courtesy of Green House Seeds*

**Contact
High**



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Entertainment

Irvine Welsh Goes Off!

Author of *Trainspotting* releases *Skagboys*. p.27



Food

Chicken Francheeba

A dish that will make you cluck for joy! p.34



Anti-pot forces still rely on the propaganda of *Reefer Madness*.



with a nationally representative cohort of over 43,000 US respondents ages 18 and older. Using structured questionnaires, the researchers assessed the association between cannabis use and the prevalence of various mental illnesses, including depression, anxiety and personality disorders.

"The odds ratio for cannabis use among individuals with 12-month mental illness vs. respondents without any mental illness was 2.5," the authors concluded, noting that the plant was "particularly associated with bipolar disorder, substance use disorders and specific (anti-social, dependant and histrionic) personality disorders."

But association is not causation, warns Mitch Earleywine, PhD, author of the book *Understanding Marijuana: A New Look at the Scientific Evidence*. (He is also a member of

NORML's board of directors.) Earleywine notes that patients with mental illness typically consume various psychotropic substances at rates far greater than those of the general population. Indeed, a 2009 population-based assessment of US and Australian respondents reported that patients with affective disorders were more than twice as likely to smoke cigarettes than were adults with no prior history of such illness—but no one is suggesting that puffing Marlboros triggers mental instability.

Reviews of the cannabis-use data from around the globe indicate that pot doesn't do so either. For example, people are no more likely to be diagnosed with mental illness in the U.S. and Canada—two nations with among the highest rates of cannabis use—than they are in Sweden or Japan, where self-reported marijuana use is comparatively low.

Furthermore, the increased popularity

Crazy Cannabis Research

Allegations that pot causes mental illness return, but the science behind the scare remains questionable. *By Paul Armentano*

Does smoking pot make people crazy, or do lots of crazy people smoke pot? That's the question raised by the findings of a just-published study sponsored by the Canadian Centre for Addiction and Mental Health.

It's hardly the first time that society has pondered this issue. Allegations that cannabis triggers violent or psychotic behavior were the basis for the federal government's successful "Reefer Madness" campaign in the 1930s. Hindsight, of course, later showed these claims to be categorically false. Nevertheless, over the past decade, concerns regarding marijuana's role as a potential underlying component in various forms of mental

illness, particularly schizophrenia, have once again surfaced, largely fueled by prohibitionist forces in Britain and the US. As in the past, however, the hard science in support of such claims remains largely specious. Despite a spate of recently published peer-reviewed papers on the subject, investigators' findings remain for the most part contradictory, raising far more questions than answers.

Such is the case with the latest data compiled by Canadian scientists and published online in the journal *Scientific Psychiatry*. Investigators at the Centre for Addiction and Mental Health and the University of Toronto analyzed data gathered from face-to-face interviews

« of cannabis in recent decades, both here and abroad, has not been associated with a parallel increase in the prevalence of mental disorders. Specifically, a 2009 study authored by researchers at Keele University Medical School in Britain compared trends in marijuana use and the incidence of serious mental illness in the United Kingdom from 1996 to 2005. Investigators found that the “incidence and prevalence of schizophrenia and psychoses were either stable or declining” during this period, even as the use of cannabis among the general population was rising.

So if cannabis use isn't a cause of mental illness, why do so many people with psychiatric disorders report using it? The likely explanation for this association, says Earleywine, is that many patients are simply self-medicating with cannabis. Pot is well-known to be a safe and effective mood enhancer, and cannabidiol, a key component of the plant, possesses documented anti-anxiety properties. A 2012 study published in the scientific journal *Psychiatry Research* reported that bipolar patients with a history of marijuana use performed better on a series of neurocognitive tests than bipolar patients with no such history. Similar findings have been reported among

Clinical evidence linking pot use with the incidence of schizophrenia or other psychological diseases was “overstated.”

patients with schizophrenia.

Even more notable, a 2012 paper authored by researchers at the University of Maryland found lower mortality rates among cannabis-using patients diagnosed with schizophrenia, psychoses and related disorders as compared to nonusers. A 2005 review published in the *Journal of Psychopharmacology* called for the clinical study of cannabinoids as an adjunctive treatment for patients with various mental-health issues, acknowledging that the compounds “exert sedative, hypnotic, antidepressant, [and] antipsychotic ... effects.” As Earleywine concludes: “Cannabis doesn't make people mentally ill, but a lot of mentally ill people use cannabis.”

Other recent studies have questioned the supposed association between cannabis use and mental illness altogether. Writing in the journal *Addiction* in 2010, researchers at the University of Bristol's Department of Social Medicine concluded that clinical evidence linking pot use with the incidence of schizophrenia or other

psychological diseases was “overstated.”

Most recently, a 2013 paper in the same journal, authored by investigators at the Netherlands Institute of Mental Health and Addiction, concluded: “Our data suggest that the prevalence of internalizing disorders is no higher in non-dependent frequent cannabis users than in the general population, suggesting that the mental health risks of frequent non-dependent cannabis use may have been overestimated in previous studies.”

Ultimately, however, the re-emerging claims about cannabis and its harmful effects on mental health will likely do little to stave off the increasing momentum of public sentiment in favor of the plant's legalization and regulation. Unlike the scare tactics of the 1930s, which spurred calls for criminalization, today's claims that cannabis use causes psychotic behavior appear to carry little weight with a voting public that's become justifiably weary of pot prohibition. ✨

Paul Armentano is deputy director of NORML.

HIGH FIVE

Courageous Vets

Those who served our country now fight for cannabis rights. *By Mark Miller*



MICHAEL KRAWITZ
(Air Force)

Krawitz suffered injuries while serving from 1981 to 1986. He is now director of Veterans for Medical Cannabis Access and one of the plaintiffs in the case *Americans for Safe Access v. the DEA*, which may lead to a rescheduling showdown before the Supreme Court. In 2010, he helped craft the US Department of Veterans Affairs' policy on medi-pot, which allows vets to use it in states where it's legal.



EUGENE DAVIDOVICH
(Navy)

Davidovich served four years as a squid; he received medals, commendations and an honorable discharge. He is now a tireless medical cannabis advocate in San Diego. Davidovich operated a nonprofit collective until being busted by San Diego police in 2009. He currently works with Americans for Safe Access, trying to create a workable dispensary program with city officials.



EMANUEL HERRERA
(Army)

Herrera was injured when his truck was hit by a bomb in Iraq. He got hooked on painkillers following his discharge to cope with his injuries and PTSD. Once medical pot was legalized in Arizona in 2010—but not for PTSD—Herrera began using it, despite warnings from the VA hospital that it was unacceptable. He now lobbies to have PTSD added as a qualifying medical condition under Arizona law.



BOB WILEY
(Air Force)

Vietnam vets still cope with physical and emotional damage from a war that ended long ago. Wiley was chairman of Veterans for 64, which advocated Colorado's Amendment 64, after the state's Department of Health refused to add PTSD to the list of qualifying medi-pot conditions. The amendment passed in November. Now vets can legally use marijuana as often as needed.



MICHAEL INNIS
(Army)

Innis' convoy in Afghanistan was ambushed. He returned home suffering from PTSD. Prescribed a variety of pills with debilitating side effects, he switched to cannabis and found relief. In New Mexico, which sanctions medical pot, Innis was at the center of media focus when the Department of Health opted to keep PTSD as a qualifying medical condition.



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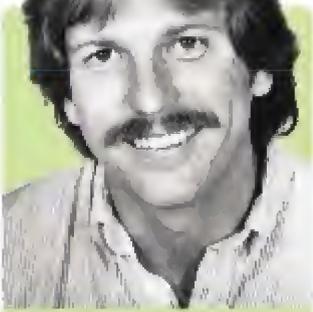
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Late Apology

Nine years ago, investigative journalist Gary Webb exposed the connections between the CIA, the Nicaraguan contras and the 1980s crack cocaine epidemic in Los Angeles. He then saw his professional credibility destroyed by specious attacks from the mainstream media, which eventually drove him to commit suicide. Now, a posthumous apology has been extended by one of the establishment hacks who helped to ruin Webb's career.

Jesse Katz, the primary reporter behind the *Los Angeles Times*' smear campaign against Webb and his groundbreaking 1996 "Dark Alliance" series for the *San Jose Mercury News*, admitted on public radio station KPCC-FM in May that the paper's attacks were "overkill"—which is something of an understatement, considering that the *Times* assigned 17 reporters to pounce upon the slightest mistake in Webb's reportage. The *Times* spread outright lies, writing that Webb had claimed the CIA purposefully tried to get African-Americans hooked on crack, which Webb never wrote.

Katz conceded to KPCC: "We really didn't do anything to advance [Webb's] work or illuminate much to the story, and it was a really kind of tawdry exercise."



Etheridge remains a stalwart supporter of legalizing cannabis.

Melissa for Marijuana

Singer Melissa Etheridge first gained fame as a raspy-voiced, acoustic-guitar-slinging rocker, and she has used that celebrity to promote a number of worthy causes, including pot legalization. She even sat down with *High Times* for the feature interview in our 420th issue (Jan. '11).

In June, Etheridge once again strongly endorsed the end of marijuana prohibition in a special op-ed she penned for *CNN.com*. After being diagnosed with breast cancer in 2004, Etheridge writes, she was treated with powerful dose-dense chemo, which resulted in a suppressed appetite, nasty gastrointestinal pain and depression. Close friends recommended that she use cannabis to deal with the side effects. Etheridge had smoked the occasional joint before, but she quickly became a believer in the powers of medical pot, for a very simple reason: "It worked. The entire experience changed my life. It opened my mind to a new way of thinking about my body, my health and the future."

Etheridge also points to the recent ACLU report on the inherent racism driving marijuana arrests and equates the struggle to legalize cannabis with the fight for same-sex marriage. And, needless to say, her own enthusiasm for pot hasn't diminished over the years: Etheridge says it still relieves pain, helps her sleep and even enhances her enjoyment of *Game of Thrones*.

Canada Says "No Grow"

Unfortunately, our neighbor to the north seems to be regressing when it comes to pot. In 2001, Canada became the first country to institute an official medical marijuana program, allowing patients to grow their own medicine and also creating a federally operated cultivation facility in Manitoba to supply those unable to do so. But under the current conservative prime minister, Stephen Harper, Health Canada has announced that as of April 1, 2014, the Manitoba facility will be shut down and *all* cannabis cultivation by patients will be banned. Only licensed growers in the private sector will be allowed to continue operating.

The ban will leave more than 30,000 legally authorized medi-pot patients scrambling to find licensed growers in their area. And the growers themselves will be subject to increased scrutiny by the federal government, with tightened security measures and more inspections. The new



regulations heavily favor law enforcement, reflecting the right-wing leanings of the Harper administration and its allies and supporters in the various police agencies.

For example, Staff Inspector

Randy Franks of the Toronto Drug Squad accused patients who grow their own of selling their extra medicine to the black market, saying: "There's far too much potential and actual abuse within the current scheme These home-grown operations are able to produce far more than they need to, and they have to do something with it, so they sell it mainstream."

We had no idea that Canada's legal pot patients were actually mini-cartels. We also never suspected that the best way to end all that "potential and actual abuse" is to deprive tens of thousands of people of their federally authorized medicine. Here's hoping Canada votes Harper and his regressive policies out of office in the next election.



Reefer Racism

The American Civil Liberties Union has just released “The War on Marijuana in Black and White,” a thorough examination of arrest rates for pot possession over a single year. The study covers every county in all 50 states in 2010, revealing that the arrest rate for African-Americans was 716 per every 100,000 people, while the arrest rate for whites was only 192 per 100,000.

This means that black people are nearly four times as likely to be arrested for pot possession as whites, even though pot use is basically the same for both groups. Furthermore, that disparity is on the rise, having jumped almost 33 percent in the last decade. In the worst counties, blacks were 30 percent more likely to be arrested for cannabis possession than whites—even in counties where they make up as little as 5 percent of the population.

Overall, there were nearly 900,000 pot arrests in 2010—one every 37 seconds. In that one year alone, over 20,000 people were incarcerated for simple possession. In fact, almost half of all drug arrests in 2010 were for pot, suggesting that the War on Drugs is more accurately described as a war on marijuana users.

These busts and convictions have contributed to the fact that the United States currently accounts for 25 percent of prisoners on the entire planet—even though America composes only 5 percent of the global population.



Vermont embraces decrim.

Green Mountain State Gets Greener

As the state that gave us Ben & Jerry’s ice cream and jam band giant Phish, Vermont already had high stoner status. But now it’s official! In June, the state’s popular and highly progressive Democratic governor, Peter Shumlin, enthusiastically signed legislation that does away with criminal penalties for the possession of up to an ounce of weed and five grams of hashish for adults 21 and over. Vermont legalized medical marijuana way back in 2004, but until now, an ounce of recreational pot carried a potential prison sentence of up to six months.

Under the new law, which took effect on July 1, a first-time possession bust results in a fine that is not to exceed \$200, with the monetary penalty increasing for each subsequent offense—the equivalent of a traffic ticket. First-time offenders ages 16 to 20 must attend education and treatment programs, with potential misdemeanor criminal penalties in the event of a third bust. But once you’re 21, you cannot be criminally charged for possessing an ounce or less.

Vermont thus becomes the 15th state to decriminalize pot; Washington and Colorado, of course, legalized it outright. That means 17 states—one-third of America—are no longer putting their citizens behind bars on petty possession charges.

“Higher” Education Takes a Low Blow

A new study released by the University of Maryland’s Center on Young Adult Health and Development purports to link marijuana use to the academic problems—and post-graduation difficulties—experienced by college students.

Sporting the weighty title “The Academic Opportunity Costs of Substance Abuse During College,” the report alleges that even students smoking only twice a month were 66 percent more likely to be discontinuously enrolled than those who smoked less. And if you’re a heavy smoker—15 times or more a month—it will affect your

studies to the point that you’ll be twice as likely to get your degree over a longer period than “minimal” users.

The study was financed by the National Institute on Drug Abuse (NIDA), which basically serves as one of the federal government’s main propaganda vehicles for discrediting marijuana. Weirdly, however, the study’s own findings invalidate much of the report’s significance. It cites the fact that 58 percent of *all* college students nationwide take up to six years to complete a four-year degree, and also that most college students lack the skills that employers say they’re seeking. However, the study notes that only 33 percent of

all college students used pot in 2011—nowhere near a simple majority, let alone 58 percent. So then isn’t this figure truly an indictment of the state of higher education in America, both in failing its students academically and in not properly preparing them for a future career? But scapegoating pot is easier and cheaper, and serves the interests of the Feds and the drug-testing industry.

To the study’s credit, it does cite alcohol as the most widely used substance on campus contributing to these problems. Still, the skyrocketing cost of college—which is more likely to disrupt one’s education than any other factor—is never even mentioned in the report.

HIGHWIRE

Dispatches from the international drug war. *By Bill Weinberg*



Costa Rican
Pres. Laura
Chinchilla.

US-Led Militarization Escalates

US officialdom is clearly feeling the heat of mounting dissent south of the border. During his trip to Mexico and Costa Rica in May, President Obama sought to downplay the US security agenda in the region. In a May 3 joint press conference with Costa Rican President Laura Chinchilla, Obama was asked about the potential use of US warships in counternarcotics efforts. He replied, "I'm not interested in militarizing the struggle against drug trafficking."

Despite Obama's claims, however, his administration is in fact actively pursuing such a strategy. US military assistance to the nations of Central America has increased significantly under Obama, from \$51.8 million in 2009 to \$76.5 million in 2013 and an anticipated \$90 million in 2014. (Thanks to the Center for Economic and Policy Research for the numbers.)

Mexico Rolls Back Cooperation With the US

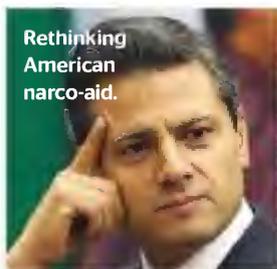
Days before Obama's trip to Mexico, the administration of President Enrique Peña Nieto confirmed that US law enforcement agents would no longer have direct access to their Mexican counterparts;



The Syrian Civil War endangers the Lebanese hashish trade.

Hash Heartland Drawn Into Syrian War

Hit by rocket fire from Syria on June 1, the Bekaa Valley, also known as Lebanon's hashish heartland, has become increasingly embroiled in the civil war raging across the border. The fertile valley, which was occupied by Syria from 1976 to 2005, is a patchwork of Sunni and Shiite areas, and during the Lebanese civil war in the 1980s, the hashish and opium trade there funded sectarian militias.



Rethinking
American
narco-aid.

all communication would be routed through the federal interior ministry.

Human Rights Watch voiced its own concerns over Obama's meeting. In a letter to the White House, the group said there has been "virtually zero accountability" for those in the Mexican government who commit significant human rights crimes, including "wide-ranging arbitrary arrests," and torture. Complaints to Mexico's National Human Rights Commission numbered more than 6,500 during the rule of Felipe Calderón, Peña Nieto's predecessor. In its letter, Human Rights Watch also accused the administration of consistently offering "uncritical support for Calderón's policies."

Protests Over Coca Zone Militarization

Peru's coca-producing Apurímac-Ene River Valley (VRAE), where a remnant of the Shining Path guerrilla insurgency remains active, has seen growing protests over the increasing militarization and abuses by the country's security forces. On May 21, Fedia Castro, mayor of La Convención province, led the March for Peace and Dignity at the provincial seat of Quillabamba, demanding justice after a recent attack that left nine local residents wounded by army gunfire—including four women and a 1-year-old infant. In the May 6 incident at Kepashiato village, army troops opened fire on a *combi* (commercial minibus) filled with local *campesinos*.

Kepashiato, on the edge of the lowland jungles, is located in the most conflicted part of La Convención, which has been under a state of emergency for more



Fedia
Castro
for coca
rights.

than a year. According to authorities, 400 metric tons of coca paste pass through the VRAE annually, bound for Brazil and Bolivia, where traffickers pay \$4,000 per kilo. Local youth are employed as *cargachos* or *mochileros* to backpack the stuff through the jungle to Kiteni, where the local airstrip is apparently used to ferry the illicit cargo to the border, deep in the jungle. The trade is supposedly overseen by the notorious brothers Víctor, Jorge and Martín Quispe Palomino, also known as Comrades José, Raúl and Gabriel of the zone's Shining Path cadre.

Narco-Pardons Scandal Shakes Peruvian Elite ...

A parliamentary mega-commission investigating

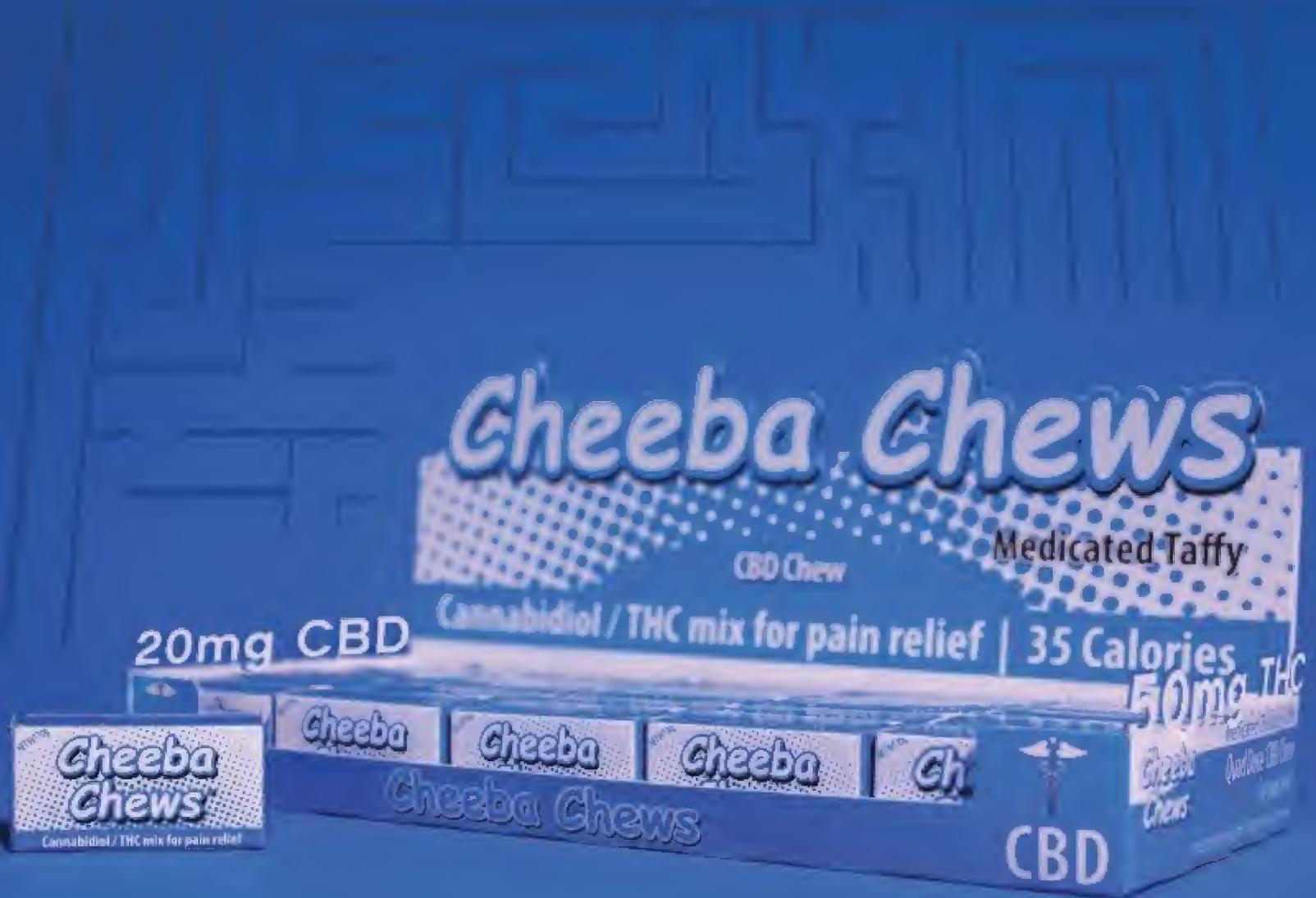
corruption in the former administration of Alan García has shocked Peru with its findings that some 5,500 pardons and commutations were granted during his presidency—including to 3,207 people convicted on drug-trafficking charges, at least 400 in high-volume cases. More than 800 of those pardoned are said to have returned to their criminal activity and are now fugitives.

... While an "Opium Mafia" Is Revealed in the National Police

The local anti-drug *fiscal* (prosecutor) in the Chachapoyas province of Peru's Amazonas region has opened an investigation into 25 people suspected of running an "opium mafia" in the security services. Among them are six members of the National Police, a provincial prosecutor and even a pilot contracted by the DEA. (The pilot, whose name has not been released, worked for a local company used by the American drug agency.) The group is accused of overseeing the commercialization of poppy crops in Rodríguez de Mendoza province, a remote high-jungle area of Amazonas. Opium production has boomed in the Amazonas region over the past five years, and authorities say morphine laboratories have been established in the jungle. ✨

For updates on these and other stories, see Bill Weinberg's websites, GlobalGanjaReport.com and WorldWar4Report.com.

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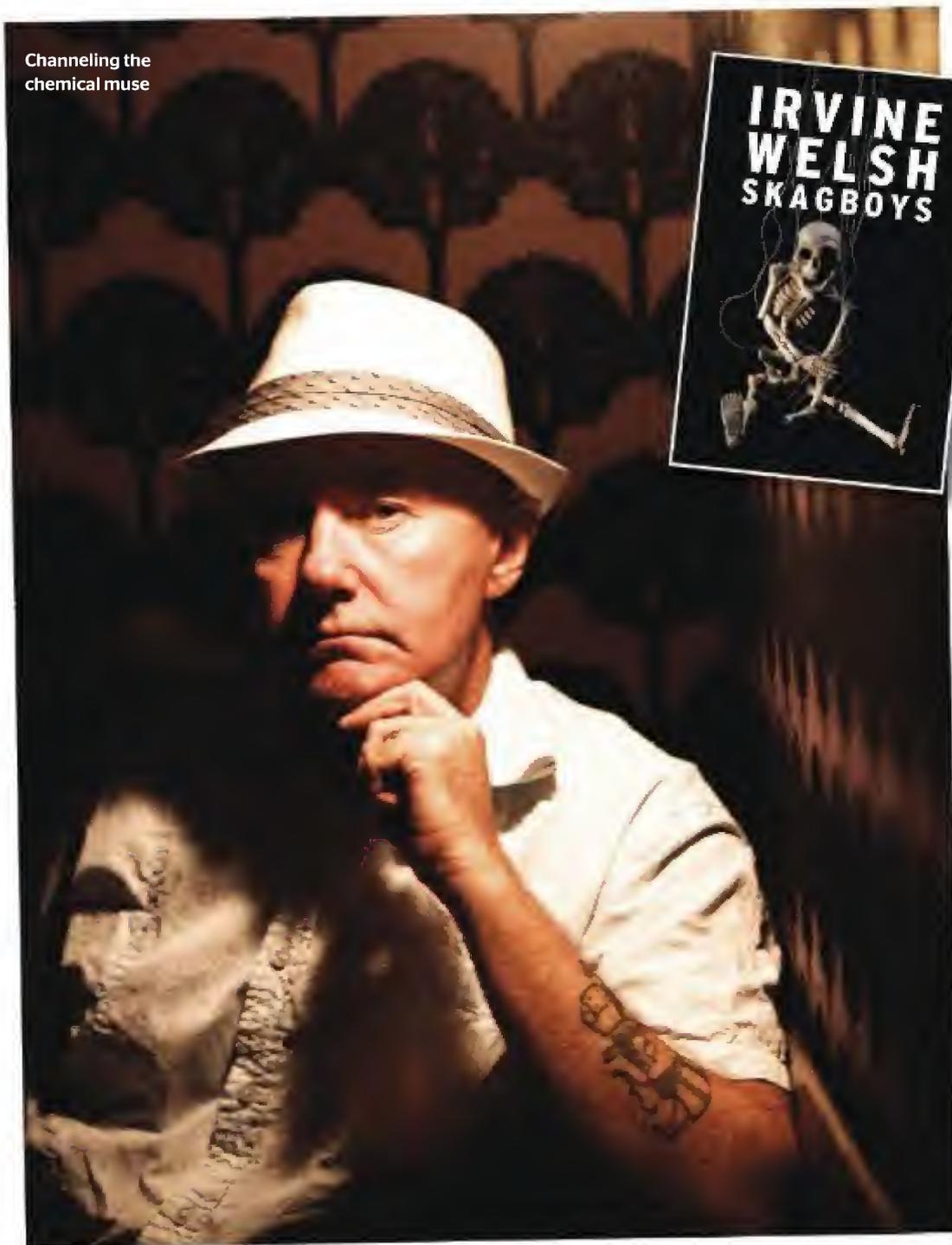
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Channeling the
chemical muse



IN 1996, WELSH SUBSEQUENTLY RETURNED TO THE SUBJECT OF DRUGS IN NOVELS AND STORY COLLECTIONS LIKE *THE ACID HOUSE*, *FILTH* AND *ECSTASY: THREE TALES OF CHEMICAL ROMANCE* (THE LATTER BECOMING THE FIRST PAPERBACK ORIGINAL TO BECOME A NUMBER ONE BESTSELLER). IN 2012, HE RELEASED HIS LONG-AWAITED *TRAINSPOTTING* "PREQUEL" WITH THE EVOCATIVELY APT TITLE *SKAGBOYS* (*SKAG* BEING THE WORDSMITH'S FAVORITE TERM FOR HEROIN). THE NOVEL REINTRODUCES US TO THE COMPLEX CHARACTERS OF *TRAINSPOTTING*—RENTON, SPUD, SICK BOY AND THE REST—DURING THE PERIOD WHEN THEY FIRST BEGAN DABBLING IN SKAG. WHILE ON A PROMOTIONAL TOUR FOR *SKAGBOYS*, WELSH—ARGUABLY THE MOST INFLUENTIAL DRUG SCRIBE SINCE HUNTER THOMPSON—FINALLY SAT DOWN TO HASH THINGS OUT WITH *HIGH TIMES*.

Like your other works, *Skagboys* is told from the alternating perspectives of the characters. Why is this a recurring element of your fiction?

Because there is no real truth, but a series of different truths. I have my own views, but I'm interested in how different people feel about things. It gives the book a richer texture—and I get bored real easily. That's why I put the tapeworm in [as a narrator] in *Filth*: just to have a different voice and mix it up a bit.

Do you have any concerns about being typecast as a "drug author"?

Not really so much. It kind of concerned me at first, but drugs are now so ubiquitous in the urban landscape, it's like writing about trees and rocks—you can't avoid it, it's so accepted as part of the normal social fabric.

Is there a legitimate drug culture?

There's something about the straight world that makes

The Acid Bard

Best-selling author Irvine Welsh on the drug experience. *By Mark Miller*

IRVINE WELSH IS AN AUTHOR, A SCREENWRITER, A PLAYWRIGHT—A GENUINE COMPOSER OF THE WRITTEN WORD. BORN IN 1958 IN LEITH, THE GRITTY PORT DISTRICT OF SCOTLAND'S CAPITAL CITY OF EDINBURGH, WHICH WOULD GO ON TO INFLUENCE MUCH OF HIS WRITING, WELSH MIGRATED TO LONDON IN THE LATE 1970S, JUST IN TIME TO

SOAK UP THE CITY'S PEAKING PUNK SCENE. HE ALSO WENT THROUGH A PERIOD OF BEING ARRESTED FOR PETTY CRIMES AND VANDALISM THAT LIKELY AIDED HIS UNIQUE PERSPECTIVE ON POSTMODERN LIFE. THE UK'S MID-TO-LATE-'80S HOUSE MUSIC SCENE FURTHER STIMULATED HIS CREATIVE IMPULSES, BUT INSPIRATION REALLY STRUCK WHEN THE

ACID HOUSE (RAVE) SCENE WAS LAUNCHED CIRCA 1988 TO '89.

WORKING FROM OLD DIARY ENTRIES, WELSH SUCCESSFULLY TRANSFORMED HIS DOCUMENTED DRUG REALITY INTO CUTTING-EDGE FICTION. HIS GROUNDBREAKING FIRST NOVEL, *TRAINSPOTTING*, WAS PUBLISHED IN 1993 AND BECAME A SIMILARLY CELEBRATED MOTION PICTURE

« people comfortable in the subculture of drug taking. But it's hard to sustain it because it becomes mainstream. It's hard to maintain a subculture these days. Acid house was the last [legitimate one], and now that's mass-marketed.

Do you smoke pot?

I never really liked it—I just go to sleep. Occasionally, it'll make me a bit giggly. It doesn't stimulate my imagination; it dulls it. I've done speed, ecstasy, mushrooms and heroin, but never been a pothead.

What do you think about the rise of pot use in the UK, as evidenced by the record number of pot gardens raided there in 2011?

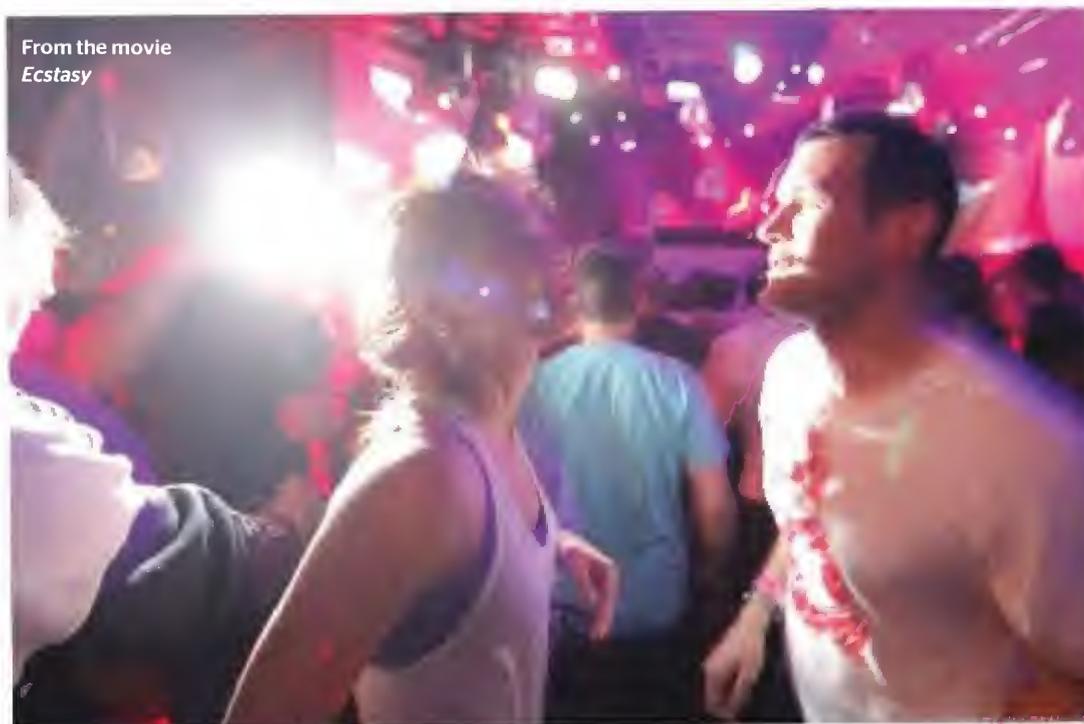
Pot use *will* increase—the whole thing has changed over the last 20 years with hydroponic technology. Pot is so versatile, and that's one of the ways it's such a great capitalist product: because it has so many beneficial uses. The ubiquity of it will increase. Mentally, people don't think of it as illegal; it's not in the cultural mind-set that it's dangerous and illegal.

Do you use any drugs in a creative capacity?

Not now. Once you hit 50, you get to a stage where the hangover is severe and the buzz doesn't hit you the same way. When the drug stops showing you something new, it loses its appeal as an intoxicant. It's like sports: Drugs are a young person's game.

For better or worse, what is the significance of the drug experience?

Once the consciousness is altered, it gives us permission to behave in other ways. Life is about celebration, celebration is about festival, and festival is about intoxication. But so many people don't have much to celebrate, so drugs become a way of hiding.



From the movie
Ecstasy

“Once the consciousness is altered, it gives us permission to behave in other ways. Life is about celebration, celebration is about festival and festival is about intoxication.”

In the film *Irvine Welsh's Ecstasy*, the character Lloyd says that he digs dancing because he misses the church and the spirituality he believed in as a child. Is the drug/dance culture a viable substitute for religion?

In some ways, yes—because there *is* a spiritual crisis. The church is seen as a bureaucracy, not in touch with spirituality but more doctrinaire. Christianity and Islam have become more about irrelevant scripture and doctrine. There's a void no religion or church can fill.

As your novels occasionally hint, do you think doing drugs well into adulthood represents a state of not wanting to grow up?

Honestly, if I were getting the same buzz off drugs the way I used to, I'd do them all the time. Your psychology and physiology change as you get older. If I were starting over

with a blank slate, I'd be doing drugs, no questions asked.

What does the future of drugs hold?

There will be all sorts of new drugs. People want bigger and faster experiences. Like DMT, there will be more drugs that are powerful but not so long-lasting—a very short but intense trip, where you get back to get on with your life. Problem is, rich people will get the good drugs and poor people will get the more toxic ones.

Would you say you have to write? Does the need to express yourself creatively burn inside of you?

I'm always working on

something. You can sit on a beach for two weeks, writing and constructing chapters in your head, and then you sit down and it all comes flying out. You can pretend you're on holiday when you're really writing a book in your head. I don't even know when I'm working or not, because writing is an extension of play and enjoyment, not sitting down and typing—that's just a small part of it.

What's the best piece of advice you can offer to the next generation of novelists?

The most important thing is to finish the story. Not every sentence has to be perfectly crafted ... it's not like sculpture. ✨



What You Don't Know About Irvine Welsh:

- In the late '70s, Welsh played guitar and sang in punk bands the Public Lice and Stairway 13.
- Welsh's favorite soccer team is Hibernian F.C., and he describes his fellow fans as “avant-garde leftists.”

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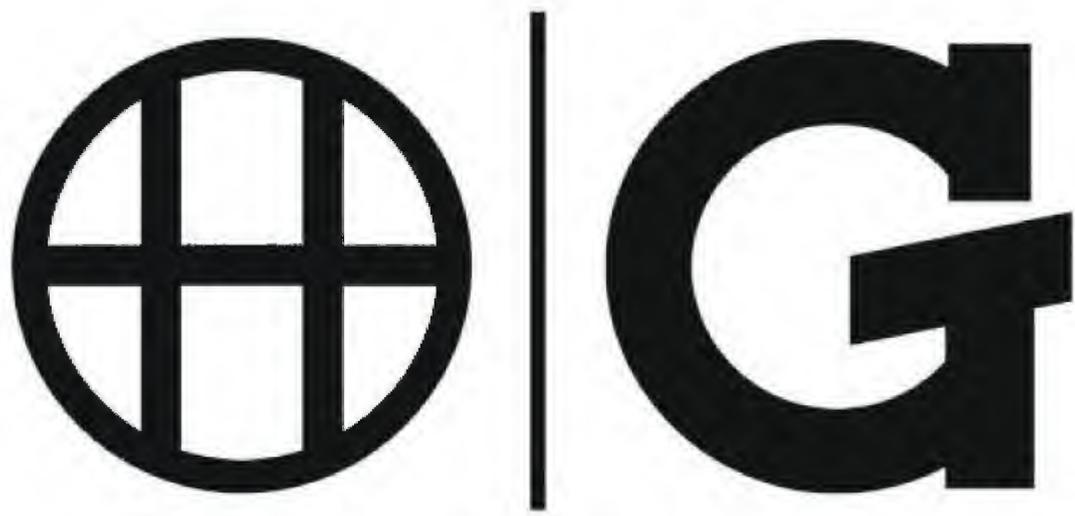


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Medical pot vs. prescription poison

America's Longest War

A new documentary with an urgent message.

Award-winning director Kevin Booth has achieved a great feat with his new documentary, *American Drug War 2: Cannabis Destiny*. Seven years after his original documentary, *American Drug War: The Last White Hope*, Booth now reveals the most innocent victims of the heinous War on Drugs: children.

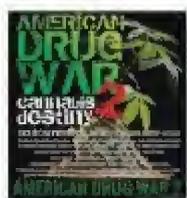
The film is dedicated to the memory of its young shining star, Cash Hyde, whose parents administered concentrated cannabis oil to him via his feeding tube after Cash's doctors had all but given up hope regarding the peanut-size tumor growing in his brain and the massive damage that Cash's little body had sustained from heavy chemotherapy regimens. The evidence marshaled

by the film—that cannabis oil not only extended Cash's life but improved its quality in his final days—transcends the anecdotal, as well as melts and breaks one's heart.

The Drug War, however, doesn't just stop at depriving medical marijuana patients of relief, nor does its impact end at our country's borders. Booth takes viewers to Juárez, Mexico, where the country's drug cartels recruit mere boys willing to

murder, many of whom sign up at the slightest prospect of financial reward. Booth also recounts the journey taken by him and his wife through the foster-care system, where pharmaceutical companies reveal themselves as legal cartels and children in the care of our government get through each day on high doses of prescription speed, sleep via heavy barbiturates and are tightly held inside the system under a mountain of scrutiny, bureaucracy and ugly profit.

Ethan Nadelmann, Rick Simpson, Dr. Donald Abrams of the UCSF Medical Center and SSDP founder Aaron Houston are among the great activists interviewed here. Go to americandrugwar2.com to find out more, and start spreading the word about this crucial documentary and its urgent message. *Mary Ought Six*



American Drug War 2: Cannabis Destiny

Directed by Kevin Booth
(Sacred Cow Productions)

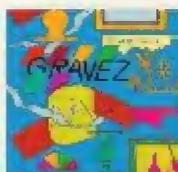
MUSIC RECOMMENDATIONS



Scale the Summit
The Migration
(Prosthetic Records)

Instrumental prog, or NoVo (“no vocals”), outfit Scale the Summit unabashedly borrow from the 1980s with a “cleaner metal” approach. Lead-guitar overlord Chris Letchford commands the opener, “Odyssey,” and the ambitious “Atlas Novus” and branches out into a more reflective

’80s sound on “Oracle,” while bassist Mark Michell gets his fill during “Narrow Salient.” But it’s not all retro glances in the rearview mirror, as *The Migration* also flashes with the unique jazzy agro of “Dark Horse” and the lo-fi framing of the album’s finale, “The Traveler.” *Mark Miller*



Hooded Fang
Gravez
(Hobby/Daps Records)

Hooded Fang’s *Gravez* is a pastiche of indie, retro, punk and psych. Bassist April Aliermo kicks off the almost-title-track “Graves,” which hurls hardcore against some disarming ’60s-style vocalizing. Songwriter/singer/guitarist Daniel Lee runs a thematic inspection of the unpleasant

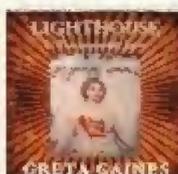
throughout *Gravez* as on “Wasteland” and “Ode to Subterranea.” Drummer D. Alex Meeks is anything but, with his catalyzing percussion propelling both “Sailor Bull” and “Genes.” The catchiest here is “Trasher,” though it remains densely produced, as Hooded Fang revel in the duality. *Mark Miller*



Rob Cantrell
Dreams Never Die
(iTunes/robcantrell.com)

Brooklyn-based standup Rob Cantrell’s unique brand of comedy is no surprise to fans of his hit Off-Broadway show *The Marijuana-logues* or his Web-based series *Universally Speaking* (available on the Bonnaroo365 channel), and now he’s unleashed it in musical form. His new

album blends humor with great tunes, highlighting Cantrell’s take on subjects as varied as babies, S’mores and break-dance wars. Of particular interest is the “Coffee and Weed” remix, featuring the band Lionize, breaking down the enduring appeal of this classic “hippie speedball.” *Danny Danko*



Greta Gaines
Lighthouse & the Impossible Love
(Big Air Records)

As a singer, songwriter, professional snowboarder and founding member of the NORML Women’s Alliance Foundation, Greta Gaines never ceases to amaze and inspire. Her latest album, *Lighthouse & the Impossible Love*, takes her already much-lauded talents to a new dimension with the

accompaniment of multi-instrumentalist Eric Fritsch. The music he plays weaves a fine tapestry in which to envelop Greta’s strong yet gentle vocals, as she sings of love, discovery and loss in a style that’s almost a genetic blend of Tori Amos, Sheryl Crow and the early Joni Mitchell. *Mary Ought Six*



Dead Southern Bishop
Hymns of Malice and Discontent
(Self-Release)

With riffs as heavy and provocative as the band’s name would imply, this five-song sludge-fest of an EP delivers an unrelenting musical attack on the senses. An air of impending doom hangs over the entire record as this three-piece group from Georgia pounds away, building distinctly

Southern-sounding deep-groove layers laced with tension and unbridled agony. Following up where their 2009 self-titled debut left off, Dead Southern Bishop’s sonic assault isn’t for everyone, but fans of true metal will love this short but infectious release. *Danny Danko*

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MUNCHIES

Chicken Francheeba

Pot Meets Poultry

Though I'd assumed it was the Italian in my blood (Sicilian, to be precise) that always had me salivating at the mention of Chicken Francese, having been raised out west in a very non-Italian family, it was only recently that I learned the dish was actually invented

right here in the United States (New York City, to be precise), cooked up sometime after World War II and given its first mention of note in a 1970 *New York Times* restaurant review.

I'm totally cool with my hunger for this supposed Italian/French staple actually being born in the US of A, given our love affair with fried strips of meat and decadent butter sauces.

Given that our nation is still wallowing in the enforcement of its failed drug laws, you're not likely to see Chicken Francheeba on the menu at any of your favorite restaurants anytime soon, but the following recipe is guaranteed to rock your fusion-food-and-canna-butter-loving world. *Mary Ought Six*

CHICKEN FRANCHEEBA

2 *tblsp.* unsalted butter
 1/8 oz. finely ground dry cannabis buds and/or crushed kief-covered shake
 4 boneless, skinless chicken breasts
 1 plate all-purpose flour (for coating the breasts)
 Salt and pepper
 1 *tsp.* granulated garlic (garlic powder may be substituted, and either is optional)
 3 large eggs
 2 *tblsp.* filtered water
 1/4 cup extra-virgin olive oil
 1/2 cup dry white wine
 1 cup chicken stock
 1/2 lemon, sliced into rounds
 1/2 lemon, juiced
 1/4 cup chopped fresh parsley (though if you have fresh organic marijuana fan leaves to chop up instead, *bon appétit, super connoisseur!*)

few times while it's still melty soft and remove when the consistency is right to make balls.

Next, mix the garlic into the flour. Beat the eggs and lemon juice in a wide bowl for dredging; add fresh pepper and extra garlic, if desired.

Pound the chicken breasts to a quarter-inch thick; salt and pepper both sides. Heat the oil in the pan over medium-high heat. Dredge both sides of the breasts through the flour, then egg-wash. Fry two at a time until golden brown, about two minutes for each side; remove and place onto a large plate.

Place the lemon rounds in the same oil and sauté until caramelized. Add the wine and stock, simmer five minutes, then lower the heat to medium-low. Make three cannabutter balls, roll them in flour, add them to the sauce, and stir until the flour dissolves.

Next, return the breasts to the pan. Place the lemon slices on top and simmer for about two minutes. Then plate the chicken and evenly coat each portion with the remaining sauce. Garnish with chopped pot or parsley, *et voila!* *Stones 4.*

Melt the butter in a double boiler over low heat. Stir in the cannabis, and continue heating and stirring occasionally for 40 minutes, making sure the pot doesn't burn. If it smells toasty, remove from heat immediately.

In this recipe, I prefer to leave the finely ground plant matter in instead of straining: The effects vary beautifully by strain, and the plant's terpenes play nicely with the rest of the flavors. Once the cannabutter is finished, put it in the fridge and begin making the flour and egg dredges. Don't let the butter get too hard—stir it a



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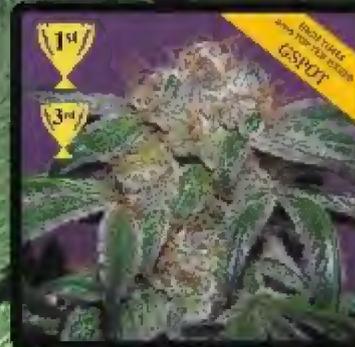
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Medical Strain of the Month

Kandy Kush, just one wonderful example of the proud Kush lineage



Kush

At a recent make-your-own pizza party hosted by an old friend, I rolled up a fat joint from my private stash and passed it around just before the first pie emerged from the oven. A beautifully grown, perfectly cured, 100 percent organic resin-coated wonder strain with a sweet, skunky aroma so powerful that it cut through the surrounding smell of melting cheese, my bud earned appreciative nods and smiles all around, plus one somewhat unexpected compliment.

"That's the Kush, man, for sure," my friend's younger sister, just home from her first year at college, told me between puffs. "It's so damn Kushy!"

What made her high praise so strange wasn't the way she kept giggling, but the fact that I'd actually rolled up a strongly *sativa*-dominant variety that in no way resembles Kush. I didn't want to embarrass her, so I tried to shift the subject.

"Do they smoke a lot of Kush at your school?"

"That's *all* we smoke," she replied. "Nobody smokes schwag ... although this stuff is definitely the *Kushiest* I've ever had in my life."

Ah, I thought. Now I get it.

Like *dank*, *chronic* and *kind*, the term *Kush* has apparently become some

kind of generalized slang for high-grade cannabis. I can remember when the same thing happened with *hydro*.

But the truth is that Kush actually takes its name from a region of the Himalayas called the Hindu Kush, which borders Afghanistan and Pakistan, where the world's finest hash makers once plied their trade in peace and prosperity. They also, through selective breeding over many years, developed short, stocky, bush-like cannabis varieties that can grow in almost any climate and mature quickly, yielding fat, extremely *indica*-dominant buds coated in glistening trichomes.

Back in the days of the "hippie trail," traveling heads of the late '60s and early '70s began returning from the Hindu Kush with seeds for these wonderful strains, which helped make all-American homegrown a viable option in northern climates. Those seeds also provided the genetic building blocks for many of today's most powerfully pain-relieving varieties.

Unfortunately, after nearly 35 years of war and deprivation, taking a trip to the Hindu Kush definitely ain't what it used to be. But we can still smoke some Kush and dream. *David Bienenstock*

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(Sour Diesel)
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 Meridian, MS

MARKET ANALYSIS

Prices by the ounce

All indices, with the exception of the Kind Index, finished October exceeding their previous month's average. The US Price Index experienced the biggest increase (+\$19). Meanwhile, the Kind Index dropped \$10 from its previous month's average and finished October \$8 below its year-to-date average.

US Price Index
 YTD Average: \$327



Kind Index
 YTD Average: \$394



Mids Index
 YTD Average: \$274



Schwag Index
 YTD Average: \$105



(Blue Dream)
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 Newark, DE

TRANS HIGH MARKET QUOTATIONS

STATE	CITY	STRAIN	PRICE
Arizona	Tucson	Skywalker	\$480
Arkansas	El Dorado	Headband	420
California	Fresno	Lime Kush	220
	Los Angeles	Granddaddy Purps	230
		Tahoe OG	350
		Girl Scout Cookies	360
Colorado	Boulder	SFV OG Kush	300
	Denver	Kosher Kush	350
		Golden Goat	300
Delaware	Newark	Blue Dream	350
		Lemon Haze	350
		Hindu Kush	350
Florida	Apopka	Green Crack	300
		LA Confidential	380
Hawaii	Kauai	Super Silver Haze	410
Indiana	Indianapolis	Bubba Kush	320
		Mars OG	300
		Master Kush	325
Kansas	Wichita	Sour Diesel	375
		Northern Lights	380
Maryland	Baltimore	Purps	420
Massachusetts	Pittsfield	Girl Scout Cookies	315
		Jack Herer	325
		AK-47	380
Michigan	Detroit	Sour OG Kush	400
		Sour Diesel	375
		Chemdog	250
Minnesota	Winona	East Coast Sour Diesel	380
Mississippi	Meridian	Sour Diesel	300
Missouri	Kansas City	Bubblegum	350
New Jersey	Hoboken	Strawberry Cough	400
New York	New York	Ghost Train Haze	420
		Girl Scout Cookies	380
North Carolina	Charlotte	Skywalker	400
Ohio	Cleveland	Trainwreck	400
Oregon	Eagle Creek	Chemo	240
		G13	200
	Yamhill Valley	Northern Lights (Auto)	150
Tennessee	Easton	Blue Dream	350
Texas	Austin	Sour Diesel	400
		Pineapple Express	375
Virginia	Richmond	Super Lemon Haze	400
		Blue Dream	420
Washington	Seattle	Cheese	300
		Purple Kush	280
INTERNATIONAL			
Canada	Montreal	Headband	C\$210
	Toronto	Jack Herer	\$180
		Sweet Tooth	170

We want to know what you're smoking! Submit your strain information, location and price by the ounce to thmq@hightimes.com or on Twitter using #THMQ.

(Girl Scout Cookies)
 "I always wake up with the munchies after smoking this strain. Don't know why ..."
 New York, NY

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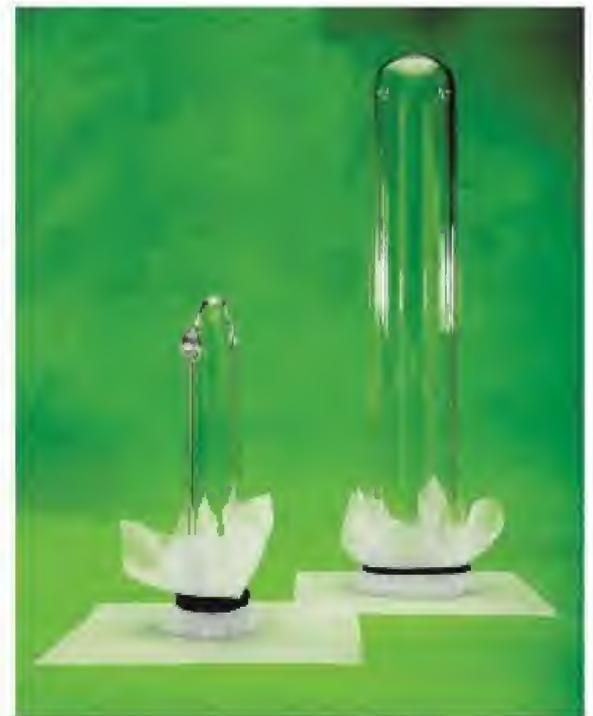
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Attendees eagerly await Wu-Tang.

Two Days by the Bay

Once again, the High Times Medical Cannabis Cup rolled into San Francisco Bay for a high-spirited celebration of California's most valuable commodity.



Magnolia Wellness won Best Booth, featuring a Ferris wheel and carnival acts.



Sovereign Wellness Center displays a beautiful bouquet of buds.

“Is that a Ferris wheel?”

“Yeah, it is!”

That’s how conversations went down on June 22 as High Times opened the doors for our fourth annual Medical Cannabis Cup in the Bay Area of San Francisco. In one of three medication areas raised on the grounds of the Craneway Pavilion in Richmond, Magnolia Wellness of Oakland not only erected a Ferris wheel but hosted a veritable circus, featuring a sword swallower, a snake dancer, a Hula-Hoop pro and a stilt walker. The entertainment they provided in their corner of the event earned them top honors in the Best Booth category when the Medical Cannabis Cup Awards were presented on Sunday night.

Five thousand people attended the Cup and were invited to sample the wares of hundreds of vendors. The proliferation of dab culture showed no signs of abating as concentrates of all shades and textures



1) Plenty of concentrates were on display 2) Miss High Times 2013 throws joints to attendees 3) Wu-Tang's GZA performed for a VIP party sponsored by the Cali Connection 4) Master Fumo demonstrates La Fumo Pipe 5) Magnolia Wellness' snake charmer 6) Gonzo artist Vincent Gordon shares his latest masterpieces.



were available and torches blazed away at scores of booths.

Inside the Craneway Pavilion itself, non-profit advocacy groups and cannabis defense attorneys set up shop to meet Cup-goers in need of guidance. Plus, MAPS (Multidisciplinary Association for Psychedelic Studies) mounted an art show featuring visionary paintings, many of which were pot-themed.

Dennis Peron, who received our Lifetime Achievement Award, arrived Saturday afternoon with his posse of medical pot activists. He was blown away by the genial nature of the event—the happy, stoned crowds and the undeniable mainstreaming of marijuana culture. Our community is, if nothing else, inclusive. If you support cannabis freedom—medical, recreational, industrial, spiritual or otherwise—then you're welcome here!

Our Saturday night concert featured Raekwon, GZA and Ghostface Killah from the Wu-Tang Clan hosted by the Cali Connection,

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The 2013 Medical Cannabis Cup was held at the San Francisco Convention Center on June 22-23, 2013.

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THE WINNERS

BEST SATIVA

1. Cracker Jack by Santa Cruz Mountain Naturals
2. Red Dragon by Leonard Moore Co-op
3. Tangle by BAMF Extractions

BEST INDICA

1. Girl Scout Cookies by Berkeley Patients Group
2. OG Eddy Lepp by 3rd Gen Family
3. Bomb Threat by Archive Seed Bank

BEST HYBRID

1. Headband by Loud Seeds
2. Phish OG by Sovereign Wellness Center/produced by Ganeshes' Garden
3. Veganic Platinum Girl Scout Cookies by Buds and Roses & Private Stock LA

BEST CONCENTRATE

1. Paris OG Wax by Grateful Meds
2. Humboldt OG Shatter by Golden State Extracts
3. Lemon Amnesia Shatter by Archive Seed Bank & TerpX

BEST HASH

1. Lemon OG Solventless Wax by BAMF Extractions & Reserva Privada
2. Caramel Candy Kush Bubble by Dynasty Seeds
3. Master Yoda Solventless by Kush Connection & Essential Extracts

BEST EDIBLE

1. Kiva Blackberry Dark Chocolate Bar by RCP Sacramento
2. Day Dreamers Medicinal Chocolates by SJ Patients Group
3. Toffee Turtles by CCSC Melrose Premium Collective LA

HIGH CBD

- Edible:** Lemon Blueberry C.B.CanD Lollypop by Top Shelf Collective & Shatter Made Edibles
Flower: Jedi Kush by Blindpack Trading Pins
Concentrate: C.B.CanD Oil by MTG Seeds & First Class Concentrates

BEST NON-EDIBLE

- MEDICALLY-INFUSED PRODUCT**
 Doc Green's Therapeutic Healing Cream by Doc Green's Healing Collective

BEST PRODUCT

1. Oil Slick
2. Cloud V
3. Micro Vape Glass Globe Kit by Vaped Vaporizer

BEST BOOTH

1. Magnolia Wellness
2. Call Connection
3. TGA Genetics

BEST GLASS

1. Hitman by Hitman Glass
2. Revere Glass School
3. Siilka Glass

whose top dude Swerve bombarded the audience with T-shirts, key chains and hundreds of joints.

The Sunday night awards ceremony honored worthy winners. Loud Seeds, which won in the Hybrid category at the 2012 Amsterdam Cannabis Cup, walked away with the Hybrid Cup again for Headband. The dreamy Paris OG Wax by Grateful Meds was a clear favorite in the Concentrate category, and the Kiva Blackberry Dark Chocolate Bar by RCP Sacramento ate up the competition in the edibles division. Girl Scout Cookies, which has won in many other competitions, finished first in the *Indica* category.

Dennis Peron's induction as the winner of the Lester Grinspoon Lifetime Achievement Award was a quiet affair. Longtime activist John Entwistle spoke of his many achievements and his relentless, trailblazing nature, and when Dennis took the stage, he thanked all of us for carrying on the fight.

We have a long way to go, but Dennis' inspiring example lights the path. In the meantime, our forces in this epic battle to free a miraculous plant for the benefit of humankind only strengthen—while events like the Cannabis Cup serve as milestones of our progress. 🌿

7) James Loud of Loud Seeds won his first stateside Cannabis Cup for Headband 8) Raekwon lights up during the Wu-Tang show 9) Swerve from the Call Connection sponsored the VIP party 10) Wu-Tang's Ghostface Killah rocked the mic all night 11) Best Hash went to BAMF for their Lemon OG Solventless Wax 12) Standing room only for Danny Danko's *Free Weed* grow panel.



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Does the idea of a cocaine submarine conjure up pictures of Scarface-style opulence in a nautical setting? The truth is, these boats would make Captain Bligh's vessel seem like a luxury cruise ship. Journalist Craig Stephens introduces us to the scallywags of the *yayo* seas.

We All Live in a *Yayo* Sub

Life and death on a cocaine-smuggling submersible.



Illegal drugs and their means of transport are constantly evolving. Cocaine and weed shipments have been entering the United States from Central and South America via a range of methods, with seagoing craft being one of the most popular. First there were fishing boats, then “go-fasts” (speedboats mounted with multiple engines). Once these started succumbing to improved detection, drug cartels developed the semi-submersible “narco sub”—which is now making way

for the full-scale submarine.

In 2010, authorities in Ecuador announced that they had seized an actual submarine designed for smuggling drugs. “It is the first fully functional, completely submersible submarine for transoceanic voyages that we have ever found,” said Jay Bergman, the Andean regional director for the US Drug Enforcement Administration, speaking to the Associated Press.

According to reports, the captured sub was 33 meters long, could accommodate

a crew of five or six, and was equipped with twin-screw diesel-electric propulsion, periscopes and even air conditioning. The DEA said the vessel could have carried up to 10 tons of coke.

The sub was found at a secret “shipyard” facility on a jungle river in Ecuador not far from the Colombian border. The shipyard boasted accommodations for more than 50 people, yet only one person was arrested by Ecuadoran soldiers and police, who were acting on intelligence provided by the DEA.

Semi-submersible vessels, like this one captured in 2006, have been one of the most successful ways of carrying cocaine from Colombia to Mexico.

marine



These days, cartels and drug runners are reportedly shelling out millions of dollars to build these types of complex vessels, recruiting highly skilled engineers who are usually ex-military. Still, the hefty price tag and lengthy construction time remain a drawback—so while the relentless ingenuity and innovation of the drug cartels suggest that full-scale submarines are already in use (or will be soon), the good old semi-submersible still dominates the trade. Costing less than half the price of a real sub, these vessels can be

abandoned or sunk with ease if caught.

In use since the late 1990s, the first-generation narco sub is simply a semi-submersible boat with an all-enclosing cap on top. Fitted with ordinary marine engines, it is able to avoid radar detection because only a small part of the boat's structure rides above the surface. Air intakes and a periscope fitted with simple cameras for below-deck navigation are the only parts of these vessels exposed above the waterline. As a result, aerial surveillance is generally the sole

means to detect them.

Assorted DEA reports claim that Colombian drug cartels have at least 40 of these custom-built subs, while Mexican cartels have even more. Usually made of fiberglass and powered by a 300- to 350-horsepower diesel engine, these narco subs are manned by a crew of three or four and can transport thousands of pounds of cargo; indeed, it's been estimated that the average 60-foot (18-meter) sub can carry several tons of cocaine.



Smugglers' Blues

The idea that there are cocaine smugglers out there operating radar-eluding submarines full of contraband might lead one to believe that the drug trade has entered a new era of James Bond-like technological proficiency, but there is nothing romantic (or even high-tech) about the job. In fact, the poor souls manning these vessels are often little more than virtual slaves who have been sent on a suicide mission by the crime syndicate in question in order to work off a debt or some other grievance. The crew members also have to deal with the risk of malfunctioning machinery, toxic fumes and the possibility of sinking, in addition to the obvious danger of being caught by the authorities.

On the upside, should their journey be successful, crew members can settle their beef with the crime gang and make as much as \$1,500 for two days' work. That may seem like a paltry amount considering the dangers involved, but for the average Central American with few prospects and an average wage of \$10 a day (at the high end), it's a princely sum.

These subs have a range of approximately 2,000 miles (3,200 kilometers), but a typical voyage takes around 20 to 30 hours due to the relatively slow speed of the craft (11 miles or 18 km per hour). Further delays are common due to frequent stops to let the engines cool and the diesel fumes dissipate, and also to evade pursuit. The average sub has a tiny internal area, and the conditions inside are poor. Since they're generally little more than enclosed cigarette boats, the crew members must remain seated



"I was on two runs where we had to jettison the craft and sink it."

throughout the trip, crawling from one end of the sub to the other to check the engines or use the toilet. They usually strip down to their underwear to endure the heat inside these vessels, which can exceed 100°F. The overpowering smell of diesel fuel and overflowing bucket toilets are also a constant presence.

Perched on the ramshackle floor of the sub, the captain usually has no view of the seas he's navigating apart from the crude periscope that utilizes store-bought video cameras and plastic piping, with the resulting images visible on screens inside the sub. As a result, the captain and crew communicate constantly by radio or satellite phone with their guides on land, and must remain vigilant throughout the entire nerve-wracking journey to avoid the kinds of mistakes that can lead to being detected.

Vessels seized in raids are lined up like trophies by the Colombian Navy; the sub's periscope utilizes two cameras, one for daylight and one for night vision; the 29.4 meters long submarine was equipped with GPS, electronic charts and two types of radios; a view of the captains seat.

If Not for the Courage of the Fearless Crew ...

So what's it like to risk one's life as the crew member of a narco sub? *High Times* interviewed three such individuals working for a Colombia-based gang that sends subs to various points in Central America on a weekly basis. (Their names have been changed to protect these persons and their families.)

A crew captain with nearly a dozen runs under his belt, Jean Paul, 42, a French-born former naval officer, is a rare veteran of the narco-sub trade. He left the military more than six years ago and entered into several real-estate developments in Costa Rica. When his multimillion-dollar investments tanked due to the recession, some acquaintances hooked him up with the sub operators, giving him a way to dig himself out from a mountain of debt by applying his nautical experience.

Jean Paul says he is now debt-free and actually considering further property investments after just two years in the business. He says that nowadays he's more valuable to his employers recruiting crew members and engineers than he is piloting the vessels, which means he can avoid the most serious risks.

"It's a very dangerous game and generally the domain of the desperate," Jean Paul relates. "I was on two runs where we had to jettison the craft and sink it. One occasion saw the vessel taking on

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water, and another was put down after the Coast Guard began closing in.”

Sinking a sub involves opening a number of portholes to let the water in. “Then it’s a matter of offloading as many bales of cargo as possible and getting out.” On this particular occasion, Jean Paul and his two crewmates managed to swim ashore on the Guatemalan coast without further incident. They had started the journey in Colombia.

Needless to say, getting murdered by your employer is often the reward for losing a load or bungling a trip. Jean Paul says he’s witnessed at least 10 people being killed, usually crew members or cartel employees who were shot due to incompetence or betrayal. “Funny, I’ve never seen anyone drown,” he adds. “It’s always man-on-man stuff.”

Despite this, Jean Paul says he’s more concerned by the other unpleasant aspects of the job. “Diesel fumes can kill you too, and the stench of another guy’s shit for two days isn’t nice either. Both are usually worse than the prospect of a boat sinking.”



Made with three-centimeter-thick fiberglass, the submarine has a 346-horse power engine, space for a crew of four, a range of about 900 miles and the capacity to transport 8 tons of cocaine.

Another person I spoke with is 33-year-old José, who was introduced via a mutual friend in El Salvador. A fisherman by trade, José was born in Guatemala and started his narco career after several bad fishing seasons forced him to find work as a runner for a cartel. His first job was collecting bales of weed or coke dumped by subs and boats offshore.

José reveals: “Many fishing boats in the region haven’t fished in years. They just collect bales, but keep their nets on deck

to look legitimate.” He says he would like to return to fishing one day, but for now the money is very good, and he’s got an ailing mother and four children to care for. “There is no way I could make \$1,500 for two days’ work any other way,” he says regarding his current employment as a narco sub crew member.

The third person I spoke with, 22-year-old Manuel, was recruited to the narco business at an early age in his Salvadoran village. Since the age of 13, he has worked a variety of jobs,

but much like José, he never dreamed he would earn the kind of money that he does now for a two-day sub run.

Typical of the businesslike attitude shared by his colleagues, Manuel insists that smuggling narcotics is not necessarily an evil trade. “Gringos have a huge hunger for the cargo, and they always will,” he says. “This business is very important for my people; many of them would not have food or shelter without it. It’s been a savior.” ✨

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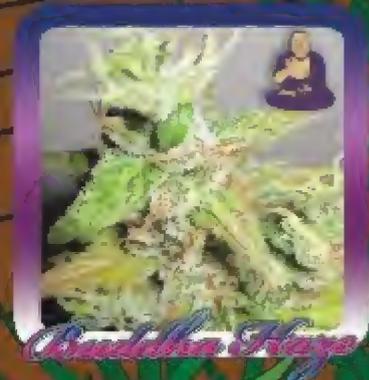
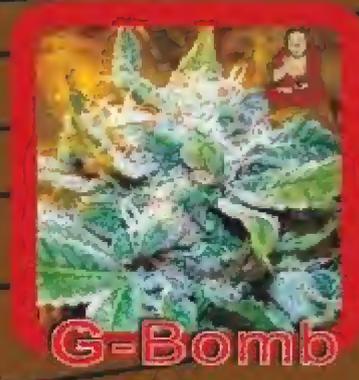
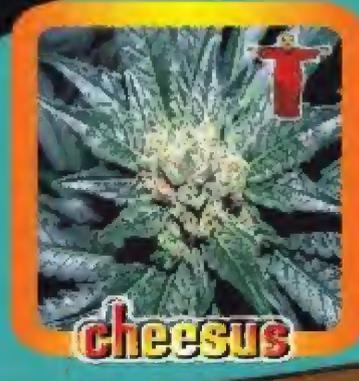
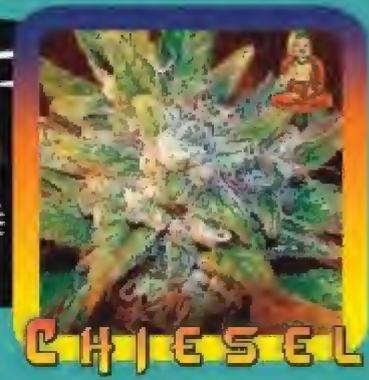
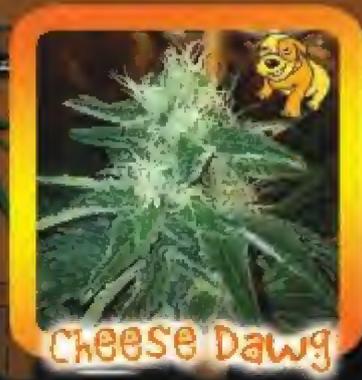
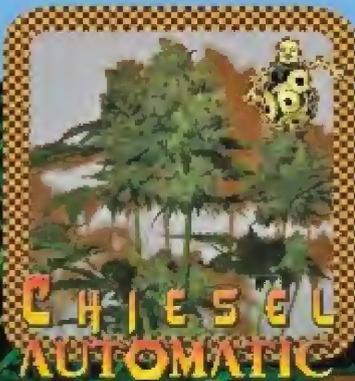
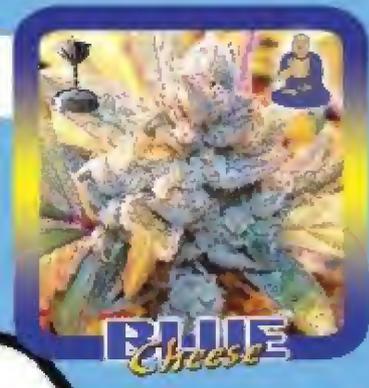
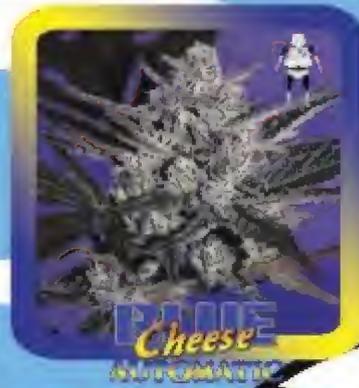
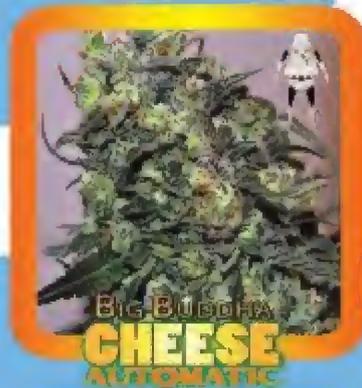
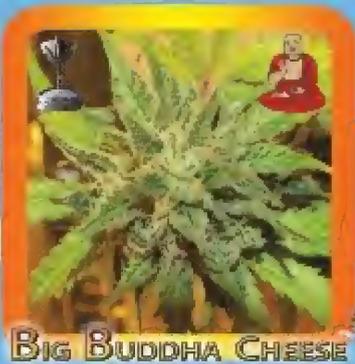
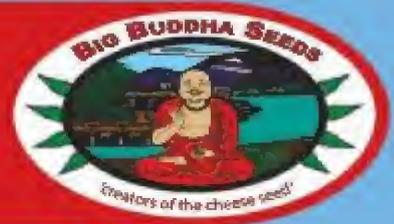
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Danny Danko travels to Holland to survey the ground, check in on the coffeeshop scene and find out the plans of various renowned seed breeders to take home awards at the 26th Annual Cannabis Cup this November 24-28.



Amsterdam Cannabis Cup Preview

The Cup Rolls On

After all of the hype surrounding last year's 25th Annual Cannabis Cup and the political uncertainties roiling the Dutch coffeeshop scene, it might be easy to dismiss Amsterdam as yesterday's news, but the fact remains that the coffeeshops are still open for business and as relevant as ever. One relatively new wrinkle in Amsterdam these days: More and more coffeeshops are catching up to the dab scene. Several shops I visited had butane hash oil (BHO) on the menu, though at a still ridiculous price of around 90 euros per gram.

Still, nothing beats being treated like a valued customer instead of a criminal, and you don't need a doctor's note to order off the menu here. This civilized approach to marijuana consumption is paving the way for cannabis clubs in Spain and providing a model for future pot retail shops in places like Colorado, Washington State and beyond.

Hemp Works x T.H.Seeds

My first destination in Amsterdam was Hempworks, Europe's oldest hemp store and home of the Hemp Hoodlamb brand, as well as of T.H.Seeds. Known for its provocative Cannabis Cup fashion shows, as well as stellar award-winning strains like S.A.G.E, MK-Ultra and the HOG, T.H.Seeds was among the inaugural members of my *High Times* Seed Bank Hall of Fame.

Founders Doug and Adam are celebrating 20 years in the hemp-clothing and marijuana-seed business. This year they're planning to enter their Darkstar in the *indica* category, S.A.G.E. in the *sativa* category and most likely Sage 'n' Sour for the Hybrid Cup. The Darkstar in particular has been making tons of noise, testing at 22% THC and wowing the judges at various cannabis competitions with a severe *indica*-dominant punch. Medicinally, Darkstar is a wonderful strain for patients seeking pain relief or appetite stimulation.

hempworks.nl, thseeds.com

Serious Seeds x Magus Genetics

We stopped by the Bluebird coffeeshop to meet with Thomas from Serious Seeds, who was eager to tell me all about a new strain called Serious 6. Normally, a seed company's adding a new strain to its roster wouldn't be that big a deal, but Serious Seeds breeder Simon has repped just five strains for almost 20 years—plus his commitment to excellence means that the Serious 6 was thoroughly tested and vetted ahead of its upcoming release. (Serious has also added several strains from Magus Genetics to its catalog, including Warlock and Motivation, since breeder Gerrit retired.)

A closer look at the Serious 6 shows that it is indeed a unique and interesting new variety. Bright pink hairs and dark purple calyxes abound on this eight-week-flowering *sativa*, and the ground-up buds have a perfumed scent with notes of citrus, anise and eucalyptus. Simon crossed a mix of landrace strains from Africa with one undisclosed strain from Canada to shorten her flowering time to a manageable 56 days—early enough to finish outdoors in Holland by the end of September. The Serious 6 acts as an uplifting mood enhancer, and women in particular seem to gravitate to her.

seriousseeds.com

T.H.Seeds' feminized-strain testing facility shows promising production.



Serious 6, the new strain from Serious Seeds, fills out quickly for a *sativa*.





Sour Diesel from DNA Genetics exhibits power and flavor.

DNA x Big Sky Seed Company

It wouldn't be a Cannabis Cup these days without the DNA boys, Don and Aaron, gracing the stage to pick up some well-deserved awards, so I simply had to stop in at their shop near Dam Square. Don and I spent some time reminiscing about their decade-long history of cannabis championships before he gave me the lowdown on what they have planned for November.

Don was clearly excited about the upcoming launch of their new apparel shop (dnastockroom.com). He also proudly announced the formation of Big Sky Seed Company, a new offshoot of their Reserva Privada brand that's bound to win some future contests.

As for strains, they're working on one called Sour Secret (Sour Diesel x LA Confidential), as well as their Tangie and Sour Tangie. The DNA "Limited Edition" series of seeds was a huge success, so Don and Aaron are planning a second round of those as well. Don wanted me to be sure to pass along his shout-out to Rare Dankness for stepping up the strain game, as well as to Method 7 for its grow-room glasses: "Once you use 'em," he says, "you can't work under growlights without 'em."

dnagenetics.com

Having breakfast and a puff at Barney's is practically a sacred rite for Cannabis Cup attendees, and both the food and smoke are always top-notch.



Derry of Barney's is a perennial pot champion.

Barney's Farm x Barney's Coffeeshop

Already well-known for strains like Dr. Grinspoon, Tangerine Dream and Nightshade, Barney's Farm and Barney's Coffeeshop never disappoint. Having breakfast and a puff at Barney's is practically a sacred rite for Cup attendees, and both the food and the smoke are always top-notch. Newer strains like the Critical Kush, Pineapple Chunk and Tangelo Rapido continue to shine a spotlight on this wonderful team.

Another regular occurrence is the annual Barney's Party, and owner Derry assured me that this year will be no different. "In the past, we've sponsored bands such as moe. and Steel Pulse," he said, "and we have a huge announcement coming soon as to who's playing this year. We're also very excited about our entries, so come on by to Barney's and join the fun!" Sounds like a plan. And Barney's Uptown Bar, located just across the street from the shop, is a great place to have a beer and a smoke in a civilized and comfortable atmosphere.

barneysfarm.com

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The grow labs at Green House Seeds show the results of growing their genetics.

Soma Sacred Seeds x Katsu Coffeeshop

Next on the map was one of my favorite coffeeshops, Katsu, and a visit with master seed breeder Soma. His Amnesia Haze won first place in the *sativa* category at the 25th Cup last year, and he's still basking in the glow of a well-deserved victory. Soma's enthusiasm for his new SO-G Kush was infectious, so I simply had to try some. As we puffed on this incredible hybrid of LA Confidential, OG Kush and Trainwreck, Soma told me how amazed he and other growers have been by the yield from these seeds.

The author of the grow book *Organic Marijuana Soma Style*, he's always preached the importance of using environmentally friendly plant foods and pest-control methods. Even Soma's seeds are produced organically and according to his strict standards. Choose to grow any strain from his quiver—Lavender, Somango, NYC Diesel or Reclining Buddha, among others—and you'll experience connoisseur quality cannabis in its truest form.

somaseeds.nl

Green House Seeds x Green House Coffeeshops

Despite having won more Cannabis Cups than anyone else on the planet, Arjan of the Green House is always reaching for the next level in marijuana achievement. His simple and highly effective Powder Feeding nutrient line will soon be available in the USA, and his *Strain-hunter* series of DVDs is now on its fifth location.

Arjan also gave me an eye-opening, behind-the-scenes look at their seed-storage and packing facility, and I was impressed, to say the least. All seeds are stored in locked, dark coolers that are kept at a constant temperature and humidity level. Sophisticated machinery tests germination and cleans, counts and colors the seeds for easy identification.

Of particular note, Arjan showed me a treasure trove of heirloom seeds he's collected directly from their places of origin. As for other breeders, he says: "Ask to see their passports—we use landraces that we ourselves acquire in their native habitats."

greenhouseseeds.nl

Milo plans to make Prix D'Ami his home base during the Cup, putting Big Buddha strains such as his classic Cheese and Blue Cheese on the menu.

Big Buddha Seeds x Prix D'Ami Coffeeshop

Milo of Big Buddha Seeds invited me to check out the Prix D'Ami coffeeshop, and once I did, I couldn't believe I'd never been there before. Three floors of spacious rooms with pool tables, lounging couches, DJs and great food complemented the many pot and hash options on the menu quite nicely. Its prime location—mere steps from Central Station and the Victoria Hotel (where the Cannabis Cup buses run back and forth to the Expo at Roest)—didn't hurt either.

Milo plans to make Prix D'Ami his home base during the 26th Cup, putting Big Buddha strains such as his classic Cheese and Blue Cheese on the menu; he'll also be holding some fun DJ parties and perhaps a pool tournament. This type of "pop-up shop" concept—a collaboration between a seed-breeding outfit and a particular coffeeshop—is something I think many others will be trying out in future years.

bigbuddhaseeds.com, prixdami.nl

The Cali Connection

I also got a chance to catch up with Swerve, master breeder for the Cali Connection, to discuss his plans for the 26th Cannabis Cup, and I couldn't be more excited. "This year," he says, "we're going to once again outdo ourselves with a massive musical act for our Homegrow Party at the Melkweg." If prior years are any indication, this is a party not to be missed, as the Cali Connection gives out tons of free stuff and throws hundreds of joints from the stage.

Party aside, Swerve also plans to enter some incredible weed into the contest, as well as feature it at his booth. (The Cali crew won second place for Best Booth last year, and they are seriously gunning for first this time around.) Known for his arsenal of Kush-related strains such as the Tahoe OG, Deadhead OG, Buddha Tahoe OG and Larry OG, Swerve is also breaking out a few new strains, including the Original Chem 91, Boss Hogg and his rendition of Girl Scout Cookies.

thecaliconnection.co.uk

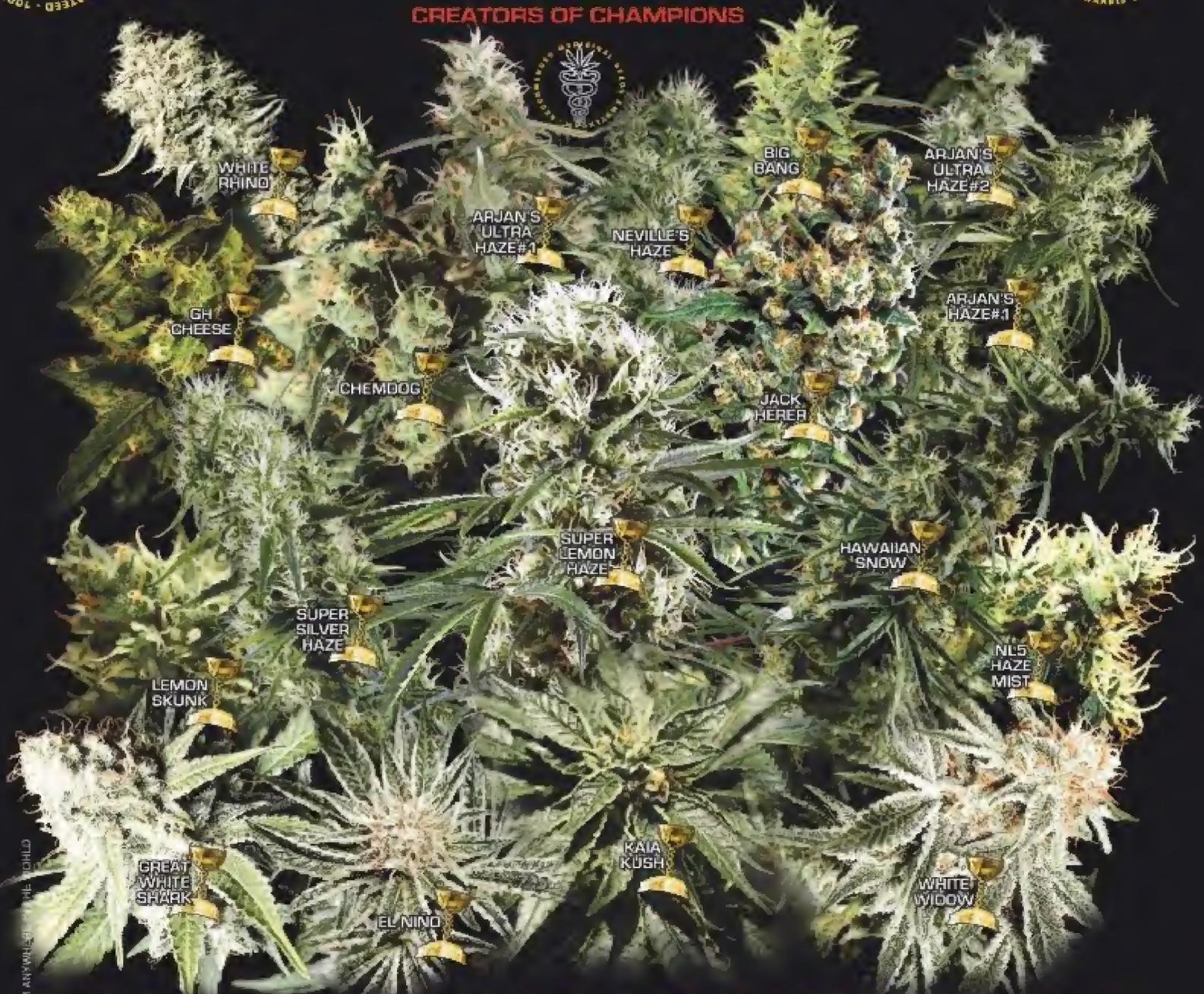


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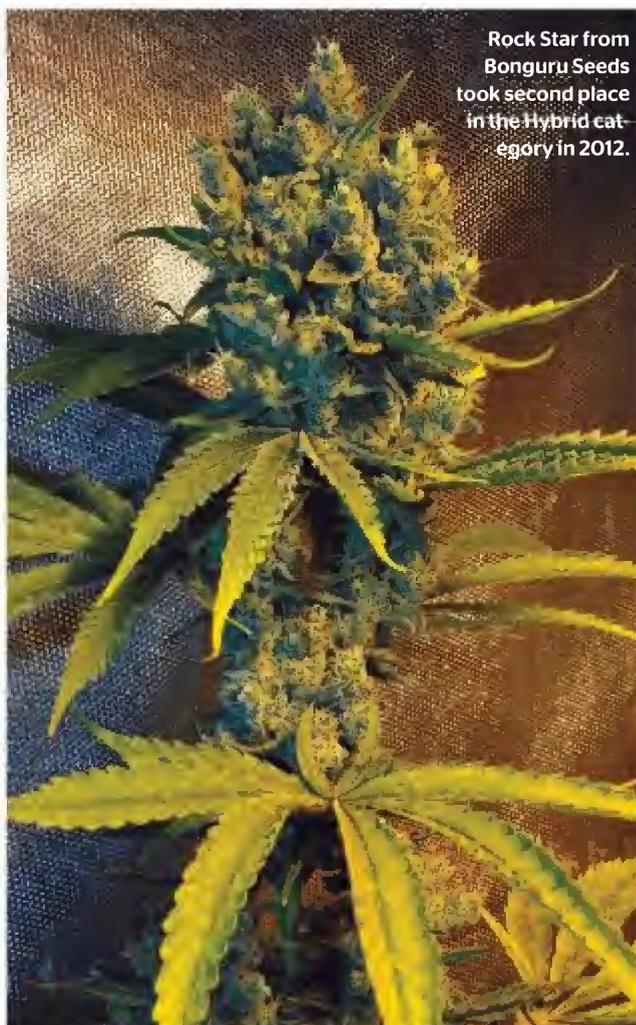
Properly flushed and cured entries are a particular specialty for both these companies.

HortiLab x Karma Genetics

Two seed companies that have taken the Cannabis Cup scene by storm in the last few years are HortiLab and Karma Genetics. Both consistently bring home awards for their well-grown, new-school strains such as Sour Amnesia and Starbud (HortiLab) and Dominator and Sour Jack (Karma).

Properly flushed and cured entries are a particular specialty for both these companies, so it was great to hear that they've decided to work together on a strain called Starbud Sister x Biker Kush. (There's also talk of a Starbud x Happy Brother in the works.) Given the prizes these two companies have already won individually for their bud and hash, this alliance seems destined for success.

hortilab.nl, karmagenetics.com



Rock Star from Bonguru Seeds took second place in the Hybrid category in 2012.

Bonguru Seeds

Last but not least, I had to check in with last year's first-time winner, Bonguru. He took second place in the hybrid category with Rock Star, a delicious cross of Paradise Seeds' Sensi Star and Soma's Rockbud. Bonguru credits Urban Grower Remo for the success, saying: "He did a great job of bringing out the very best in the Rock Star using a new coco formula from Advanced Nutrients. The last time I'd been onstage was in 1996, when Green Prisoners Release Amsterdam won a Cup and a second-place medal. It felt good to win again."

I enjoyed the Rock Star hash in particular: The heavy *indica* stone is perfect when traveling overseas. Bonguru told me he's looking to win another Cup this year, hopefully first place—and with strains like Rock Star, Shiezel and Goofy Grape in his arsenal, he certainly has a great chance of making that happen.

bonguruseeds.com ✨

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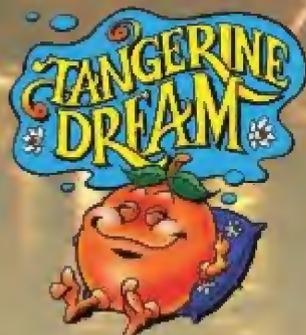
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The Birth of

The saga of how one superstar strain came into being is a tale of sweet serendipity. *By Dan Skye.*



Sometime in the 1970s, the Hindu Kush arrived on the shores of America. The strain takes its name from the rugged, 500-mile-long mountain range that extends from Afghanistan into northern Pakistan. But this story isn't about a South Asian *indica* grown with loving care by tribal families for aeons upon aeons; it's about Florida stoners and progressive growers who sought to create great buds, but had no idea what genetics they were even dealing with.

The breeder named Bubba sits down with me at the

headquarters of Rocky Mountain High in Denver. Activity swirls around us at this warehouse/dispensary on the outskirts of the city. Bubba has just given me a tour of the facility, where he now serves as master grower. If things go according to plan, he'll soon be working his magic in state-sanctioned growrooms in New Jersey and Massachusetts.

"I've been called many things," he says, "but most people call me Bubba. 'Bubba' is not just some redneck name given to me because I was raised in Florida—I'm Bubba because I call all my close friends Bubba or Bubi or some variation."

Bubba Kush



Obviously, Bubba wants to make clear it's no coincidence that the strain bears his name. With that out of the way, he begins to spin his tale.

"I am one of the original godfathers of Bubba Kush," he intones, "but I will warn you that some dates and details may be slightly marbled due to age, memory failures and smoking the Kush for 20-plus years."

Curtain up on the University of Florida, circa 1990. "It started with a bag of super-danky krypto—but *krypto* was just a generic name for weed," he says. "I was living with an awesome

bubba of mine who was teaching me how to grow. He was really into crossing strains. We were lucky enough to have some superb Skunk #1 and other really special Gainesville strains."

Attesting to his belief that the connections we make in life are not coincidental, Bubba ran into another longtime bubba from middle school who introduced him to a dude named Learch, who became a close college buddy. Learch was friends with Arnold, who came from Orlando. On one of his many visits to Gainesville, Arnold brought along an outstanding bag of weed that happened to have a couple beans.



The creation of Bubba Kush was a happy accident.

“We popped them,” says Bubba, “and started calling the strain Kush. None of us knew that a real strain called Kush already existed. In fact, I didn’t know there was a strain called Hindu Kush until a few years ago. We smoked ‘the nectar,’ ‘krippy’ or ‘the kind.’ We rarely knew what strain we were smoking. If we had all the information that’s accessible now, we would have definitely called it something different. We actually named it Kush because of a friend’s older brother, who said it looked like kush-berries—whatever the hell those are.”

The name Kush stuck. The college roomies began crossing their friends’ gnarly Skunk strains with their Kush,

creating KX, KY and KZ. They settled on the KY and killed off the KX and KZ. So then they were left with the Skunk, the Kush and their newborn cross, KY.

Fate was kind. On a trip to Mardi Gras, Bubba was gifted a bag of seeds for a Northern Lights cross from Humboldt County. “Naturally,” Bubba says, “I popped all of the seeds that looked healthy. After killing the males, I was left with about a dozen. Due to space issues, I picked six, cloned them and let them bud. One in particular was absolutely beautiful: It grew like a stumpy oak tree, with leaflets that were so fat they covered each other and blocked light from the bottom almost entirely. Obviously, I

“One in particular was absolutely beautiful: It grew like a stumpy oak tree, with leaflets that were so fat they covered each other and blocked light from the bottom almost entirely.”

kept this strain and renamed it—what else?—the Bubba. I continued to grow the Bubba, the Kush and the KY for the next few years, until I graduated. They were good years: Learch and I were the gods of Gainesville—at least for a minute. It was the start of the phenomenon. We couldn’t keep the Kush around.”

Next, Bubba headed for Los Angeles and moved in with a college buddy, a best bubba to this day. They got a place in Silver Lake with a small space under the house ideal for a secret garden. Bubba returned to Florida, stuffed a roller-blade boot with a plastic bag containing a bead of water and some clippings from Bubbas that were still growing, then stowed it all in his luggage and brought his genetics to the West Coast. Amazingly, the cuttings rooted. In time, they decided to get rid of the KY and kept just the Kush and the Bubba.

“The Kush was a tough strain,” Bubba recalls. “It was so stringy, a bad producer and very finicky—a hard strain to get perfect. But even a bad crop was still better than anything else we had or that was around in LA. But we had a problem: Our place was small and we couldn’t adjust height levels easily. The Kush was tall and lanky, but the Bubba was short and beefy. It was hard growing them together ... so, tragically, we decided to dump the Bubba.”

Fate stepped in for a second time. “We had another roommate in those Silver Lake days—Josh D. In the hierarchy of the LA chapter of the Kush Brotherhood,” Bubba explains, “Josh D. was second in line. We had a Kush that had hermaphroditic and pollinated the Bubba. Josh D. was buddies with the Cypress Hill crew. One day, B-Real and his bodyguard came by to pick up some Bubba and discovered seeds in their bags.”

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A growroom at Rocky Mountain High in Denver includes Bubba Kush and other powerful strains.

Bubba Kush had arrived—albeit by accident! But it played second banana to their original superstar, Kush.

Within six months, the Kush Kraze was raging; nobody wanted anything else. Rappers, rock stars and actors all came to Silver Lake just for the Kush. “We were getting \$8,000 a pound, and people were paying *months* in advance to make sure they didn’t miss out on a crop,” Bubba boasts. “We had it good. We used Kush for everything—lift tickets, show tickets, restaurants, you name it. We’ve given cuts to hundreds of people, and they’ve given it to two friends who gave it to two friends. Soon, everyone was growing the Kush.”

But not well. “Some people who got cuttings grew it like ass, devoid of our original quality, taste, smell and appearance,” Bubba says. “Also, pseudo-Kush strains began popping up, which true canna-sseurs knew were inferior. Then shit from Canada called Kush began appearing on the scene. It was being trucked down to LA all squished and tasted like old carrots. Prices started dropping to \$6,500. So people started making a distinction, referring to my Kush as the ‘OG’ to clarify it was the real deal.” (“OG” is an abbreviation for “original.”)

Core American values of hard work and a can-do spirit continue to drive the industry forward.

Since their creation, Bubba’s prized OG and Bubba Kush have caused nothing but craving. Their virtues have been extolled in rap songs, making Kush the de rigueur strain of the hip-hop scene. But Kush has inspired some episodes of reefer madness, too: In 2009, Representative Mark Kirk (R-IL) introduced a bill targeting “Kush super-marijuana,” which he said makes its users “zombie-like,” and called for increased penalties for those selling it.

“Drug dealers know they can make as much money selling Kush as cocaine, but without the heavier sentences that accompany crack and cocaine trafficking,” Kirk said. “Higher fines and longer sentences aren’t the total solution to our nation’s drug problem. But our laws should keep pace with advances in the strength and cash value of high-THC

marijuana. If you can make as much money selling pot as cocaine, you should face the same penalties.”

Thankfully, no such legislation ever passed. But although Kirk’s bill died, he’s now a US senator, proving once again that stupidity is no barrier to getting ahead in politics.

Fortunately, intelligence *is* valued in the cannabis community, where the core American values of hard work and a can-do spirit continue to drive the industry forward. Understandably, Bubba is proud of what he’s produced. “Today, both our OG and Bubba Kush strains are world-renowned. But,” he adds, “you’ve got identity thieves at work in this industry. One of my pet peeves is people out there calling their strain ‘Pre-’98 Bubba.’ There’s no way there was more than one phenotype by 1998, since it was created in 1997!”

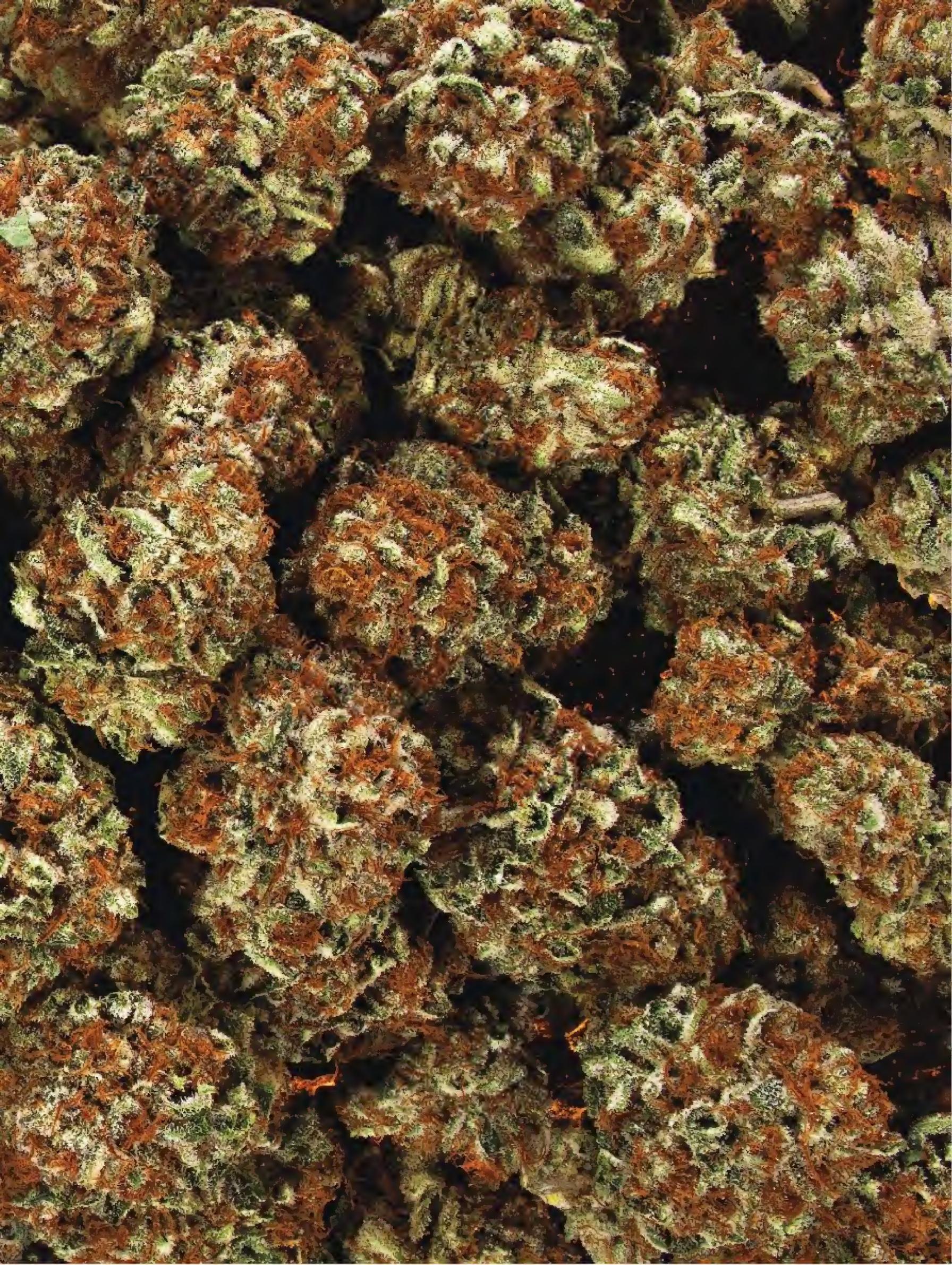
No doubt about it: Breeders of top-notch strains are sensitive souls. In fact, Bubba still grieves over the heartbreaking loss of the strain known simply as “the Bubba” years ago in Silver Lake. Like a parent speaking of a missing child, he says: “I’ve heard rumors that it still grows somewhere in Northern Cal. I’m hoping it’s true and that we can be reunited.” ✨

Bubba Kush





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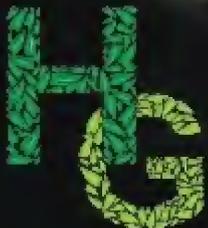


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The New Synthetics

Notes from the front lines of the 21st century's Great Mind Experiment. *By James L. Kent*



ifty years back, there was only one molecule known to be psychoactive in the microgram range: LSD. A microgram is one-millionth of a gram; a small dose is about 150 mcg, so a four-gram sugar cube of LSD would contain roughly 25,000 doses. A chunk the size

of a golf ball would be able to keep all the hippies at Woodstock high for days. The fact that LSD is active in such small doses mystified everyone who knew anything about pharmacology, and also made it very scary to people in power.

Today, there are at least a dozen hallucinogens active in the microgram range, and none of them are illegal. They've been showing up on the street as "research chemicals," made in underground labs or more commonly ordered from overseas suppliers via the Internet. Right now, there are only a handful of super-potent synthetics circulating on the street, but in the next few years there may be dozens, even hundreds. There will be too many new chemicals to test on animals, which means they'll all be tested on human volunteers hoping to find the next great psychedelic or the next "smart drug" to fuel an evolution in human thinking. The 21st century's Great Mind Experiment is well under way. You may already be a test subject.



Too Much Shit

Ben has one gram of 25-i in a drawer next to his bed. 25-i is a new synthetic hallucinogen that rivals LSD in potency. A strong dose is around 500 mcg, so one gram—barely a thimble of powder—contains well over 2,000 doses. The term “25-i” is another name for 2C-I-NBOMe, 25I-NBOMe, or what the news media call the “N-bomb,” a stupid name that nobody uses. Sometimes it’s referred to as “Smiles,” but people usually just call it “two-five-i,” “25-i” or “the eye” for short.

Ben has more of it than he knows what to do with. I suspect it was ordered over the Internet, but Ben snorts at this suggestion. Maybe he knows a chemist? He won’t say. For obvious reasons, Ben

tried LSD, mushrooms, mescaline, DMT, MDMA and a variety of other chemicals and hallucinogens. But now he’s worried that taking too much 25-i has made him paranoid. At first, he wasn’t really sure it was the 25-i, but now he’s become obsessed with the idea, so he asks me if it’s possible.

“It’s possible, but hard to say,” I reply. “There is no research on 25-i, not even animal research.” And that, in a nutshell, is the core dilemma of the Great Mind Experiment. “If you have a gram of it in your house,” I say to Ben, “you *are* the test case in phase one of unregulated human trials. You tell *me* what the side effects are.” After that, I add, I’ll ask around and let him know if I hear of any-

says. “I used to try every new drug that came around. But now” He blinks and shakes his head, thinking about that gram of 25-i radiating weirdness in his bedroom. “There’s just too much shit. Nobody can do it all.”

The Alphabetamines

Any history of designer psychedelics eventually comes back to Alexander Shulgin, the first chemist to systematically synthesize hundreds of novel psychoactive compounds. All through the late ’80s and early ’90s, Shulgin used a brute-force methodology, working substitution methods like an algorithm, churning out new permutations of existing molecules sometimes as fast as one a day. He then tested each new substance on himself, first in microdoses and then in larger ones, until he could feel some kind of psychoactive effect, and recorded the results.

Shulgin produced two volumes of his research, *PiHKAL* and *TiHKAL*, which contained synthesis information on hundreds of new psychoactive compounds with names like 2C-B, 2C-C, 2C-T-7, 2C-E, 5-MeO-AMT, 5-MeO-DMT and so on, leading people in the research-chemical scene to dub them the “alphabet drugs” or “alphabetamines.”

By the turn of the century, the number of alphabet drugs on the street was multiplying. Research-chemical companies were operating openly on the Internet, selling unscheduled drugs as quickly as they could produce them. The authorities were slow but predictable in their response. Typically, new research chemicals are ignored until somebody shows up in an emergency room; then there’s a period of public outrage, a backlash in the media, and the DEA and local authorities move in to ban analog drugs and shut down Internet retailers.

The result is a never-ending game of Whack-a-Mole: They schedule one drug and another pops up. They take out one group of Internet suppliers, and overseas companies or anonymous online marketplaces like Silk Road pick up the traffic. The authorities can try to stifle research, but this is the 21st century—people do their own research and publish the results in open forums, or trade secrets with other chemists at annual psychedelic events like the MAPS conference or Horizons NY, where molecules are sketched on cocktail napkins and synthesis methods are discussed in hushed tones over appetizers. Today’s gearheads are still trading secrets about how to get



Shulgin’s “brute force” method of synthesizing new psychoactive compounds paved the way for the modern psychedelic era.

is paranoid. He’s not a drug dealer, but rather a college student with an interest in psychopharmacology. He’s tried 25-i three times—by itself, with a small dose of mushrooms and with a small dose of methoxetamine (a derivative of ketamine)—and now he has another 2,000 or so doses left. He doesn’t want to give it away, sell it, take it again or destroy it. He keeps moving it from hiding place to hiding place, hoping to forget about it. “It’s like a weird magnet,” Ben says. “I always know it’s there. I’m always worrying about what to do with it, that someone will find it. I’ve never had that much craziness all locked up in such a small space. It’s sketching me out.”

Ben is no stranger to weird drugs. He’s

one else with similar symptoms.

I find myself doing the job of a psychiatric researcher because there is no published literature on the long-term effects of repeated 25-i use, and people like Ben have nowhere to turn when the Great Mind Experiment goes off a cliff. They look to Internet resources—chat boards, discussion groups, sites like *Erowid.org*—and they contact underground writers like myself and Hamilton Morris for help, to see if we’ve heard the rumors of people OD’ing and going crazy, of arms falling off, of a batch of this being mislabeled and sold as *that*, or asking if a particular drug is being sold on blotter or in nose drops, and so on. “I used to know about every new drug,” Ben



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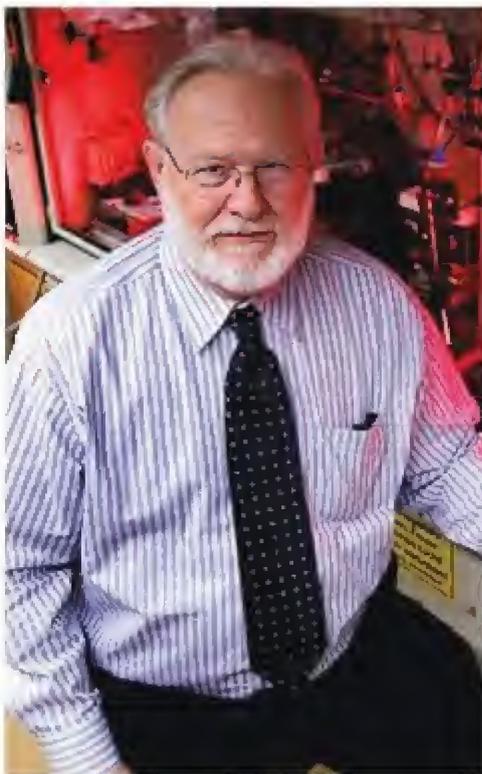
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Roflocopt

"The whole roflocopt thing spawned a lot of conspiracy theories," says Hamilton Morris, a well-known writer who covers the drug subculture for *Vice* magazine. "It seems not so far-fetched to me that the arbitrary renaming of methoxetamine with the nonstandard spelling 'roflocopt' was all some sort of carefully constructed marketing strategy." Morris is referring to a notorious article in *Mixmag* that rechristened methoxetamine as "roflocopt" for the first time and claimed it would make you lose control of your bowels. Coincidentally, at the same time that the *Mixmag* article came out, a website selling roflocopt (which may or may not stand for "Rolling on the Floor Laughing, Crapping, Our Pants Totally Ruined") opened and started taking thousands of dollars in orders. When contacted by Morris, the operators of the site were savvy enough to have press articles ready for *Vice* but then immediately went on vacation and refused to respond to follow-up questions.

Morris followed the roflocopt trail until it went cold, and with good reason: After all, he was the one who first alerted the world to the existence of methoxetamine when he published an interview in *Vice* with the chemist who'd created it a year earlier. Traditionally, the development of a new drug happens in an academic or research lab, the results are published in a peer-reviewed journal and then years of follow-up study are required before human testing. In the underground, when an amateur chemist creates a derivative of ketamine as an experiment, someone like Morris catches the story and writes it up for *Vice*, and a new synthetic is born.

Academia is more or less obsolete in this underground model, and trying to catch a new drug evolving in the wild is like a Discovery Channel for the mind. But before the *Mixmag* and *Vice* articles, roflocopt was known as "MXE" in the *Bluelight* forums, where chemists go to trade esoteric information. MXE was spotted here first, before it escaped into the wild and was turned into the drug that makes you shit your pants. Like a Pokémon, the ketamine offshoot that Hamilton Morris made famous flew away and began reproducing in the wild. Gotta catch 'em all.



Professor David Nichols led the way in synthesizing "Ultra Fucking Pure."

Hacking the Shulgin Algorithm

Although the so-called psychedelic effect of hallucinogens on the brain has long been a source of mystery, it is now understood that two serotonin receptors are responsible for the majority of hallucinogenic action: the 5-HT_{2A} and 5-HT_{2C} receptor subtypes. Any drug that promotes activity at these receptors is likely to be hallucinogenic, producing the geometric grids, spirals, floating patterns and rainbows of color associated with tripping.

If one of Shulgin's molecules hit these receptors, however, it was mainly by accident, since Shulgin had no way to predict or test the receptor affinity of the drugs he produced. But in a lab at the University of Purdue in Indiana, a pharmacology professor named David Nichols spent his career researching psychedelics to find the properties that make them hallucinogenic, and then having his team of grad students synthesize the UFP (or "ultra-fucking-pure") variations of those drugs for testing in rats trained to recognize hallucinogens.

Many breakthrough technical discoveries came out of Nichols' lab, but they all essentially boil down to this: Drugs that act as agonists at the serotonin 2A and 2C receptor subtypes are likely to be hallucinogenic; if those drugs have amine tails locked in a specific angle, they are likely to be even more potent; if they have any number of substitutions on their open carbon positions, they are

likely to be more potent still because they take longer to metabolize; and if they have certain substitutions on their amine tail—specifically a 2-methoxybenzyl group—they become super-potent like LSD (i.e., active in the microgram range), and their hallucinogenic receptor affinity goes through the roof.

Using Nichols's discoveries, an amateur chemist can take any one of Shulgin's hundreds of alphabet molecules like 2C-i, make a simple substitution to the amine tail, and turn it into 25I-NBOMe, a super-potent 5-HT_{2A} agonist active at thousands of doses per gram. Now 25I-NBOMe is passed around on tabs and in droppers as 25-i, even though 25-i doesn't necessarily imply the NBOMe variant—which can be confusing, but that's the way drug shorthand naming often works.

25-i is cheaper and simpler to make than LSD. It can likewise be sold on blotter or in nasal drops or spray, and it's being distributed at parties and festivals around the country right now—sometimes even as LSD. But 25-i is not LSD. It's a bit speedier and doesn't last quite as long; also, you have to snort it or hold it in your mouth for it to work, and it has a nasty taste. And 25-i is only one of many NBOMe-based compounds (like 25C-NBOMe and 25E-NBOMe) that have made their way to street-level distribution. These two dozen or so NBOMe compounds are just the beginning, because they're the simplest to make. But the permutations are endless. There are also hundreds of existing drugs that can be tweaked to become 10 times more potent. These hypothetical drugs are out there waiting to be synthesized by industrious underground chemists; the only thing standing in their way is time and money.

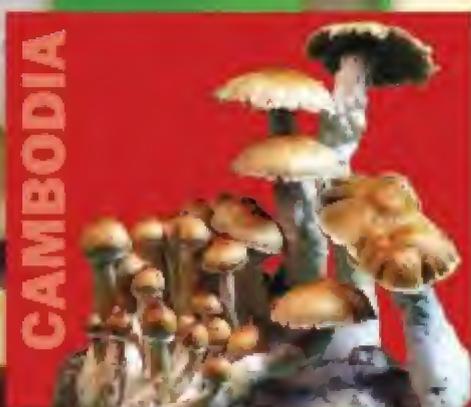
The Froth of White Noise

It has become increasingly difficult to keep track of all the evolving threads of new synthetics. When the overdose deaths of two North Dakota teens and actor Johnny Lewis, a *Sons of Anarchy* cast member, were blamed on 2C-i in September 2012, police and toxicologists were confused, because 2C-i is not generally known to cause overdoses. Was it really 2C-i, or was it 2C-I-NBOMe, a.k.a. 25-i? In the media confusion, the deaths were blamed on a drug called Smiles, clarifying nothing. A similar thing happened in 2009 when a batch of 2C-B-fly was sold as bromo-dragonfly, a totally different drug, which led to some very unfortunate overdoses. Which makes you wonder: Why are there two drugs named

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“-fly” in the same class, and isn’t having similar drugs named 2C-i and 25-i a little confusing?

Actually, it can be *very* confusing, and there’s no way of knowing what’s in the eye dropper, white powder or sheet of blotter going around, no way to know if it was labeled correctly or dissolved and mixed properly. Most people who try 25-i say it’s great—that it has all the hallucinogenic qualities of LSD without being too introspective, offers impressive visual patterns and a great body high, and doesn’t seem to cause lasting problems even in large doses. But there are a few people like Ben who took a bigger dose, got trapped in obsessive loops and became a little paranoid in the aftermath. And a handful of people looking for a good time have overdosed while snorting 25-i or mixing NBOME chemicals with other drugs. *Erowid.org* currently has a notice warning people about deaths related to snorting 25-i. The lethal-dose range, or LD 50, for 25-i has not been established, but it’s safe to say there is one, and that it’s far lower than that of LSD.

Overdoses on new synthetics may be chipping away at the image of psychedelics as “safe” drugs for experimentation.

Everyone knows it's almost impossible to overdose on LSD or mushrooms, but recent evidence has shown that 25-i is much less forgiving.

Everyone knows it’s almost impossible to overdose on LSD or mushrooms, but recent evidence has shown that 25-i is much less forgiving. The uncertainty over potentially dangerous new chemicals is spreading fear in the underground dance scene, which has seen a shift away from dabbling in super-potent research chemicals and back toward embracing good old MDMA—“ecstasy” when sold in pills, “molly” when sold as powder. At one point, it was impossible to tell what was in those party pills, and all kinds of adulterants crept in, from ketamine to caffeine, ephedrine, meth—you name it. These days, testing kits are available

from *DanceSafe.org* and other harm-reduction groups that will tell you if your pill or powder contains pure MDMA. Or you can send a sample to *EcstasyData.org*; they’ll test it for you and publish the results online.

Finding pure MDMA is safer and easier than ever before, but unknown compounds like MXE, NBOME chemicals and alphabet drugs are often too obscure and scary for the recreational user. It’s impossible to keep track of the safe-dosage range for each new drug, and ever-willing test subjects often go into the Great Mind Experiment with the casual bravado of “Let’s see what happens now” Usually, the only thing that happens is that everyone has a good time—but any new drug may surprise you. Even the synthetic weed substitutes being sold as Spice or K2 or Potpourri at gas stations can pack a nasty punch, causing hallucinations, rapid heart-beat and panic attacks, leading to emergency-room visits. In many cases, nobody knows what’s in the synthetic pot packets—not the guy selling it, not the toxicologist writing up the overdose report, not the reporters writing the news articles, and especially not the people buying and smoking the product.

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The Big Unknown

When I follow up with Ben a few weeks later, he tells me that his paranoia is gone and that he's been experimenting with tiny doses of 25-i again. He's taken a small pinch of powder—about 100 doses' worth—and put it into a solution in a nostril sprayer that can deliver a weak or strong dose depending on the number of pumps. With the pump spray, he can precisely measure the dose, so he isn't worried about doing too much—but now he's paranoid that the cap will break and a hundred doses of super-potent psychedelic juice will spill all over the place. He's also found out that 25-i is still legal in his state, so the paranoia of getting busted has lifted, even though there's an ongoing federal case to prosecute 25-i under the Federal Analog Act, and it has already been made illegal in four Southeastern states. He says he wants to try 25C-NBOMe next: It's supposed to be shorter-lasting than 25-i, but much harder to find. Ben puts it on his list of more shit to try.

"This is one of the riskiest, wide-scale health experiments in all of human history," says Dave Nichols, now retired from the Purdue University lab where he and his grad students tested the

"People contact me and tell me that they really enjoy these compounds, or that a chemical we designed in our lab provided a nice experience, but nobody knows what the long-term effects are."

"ultra-fucking-pure" 25I-NBOMe compounds on rats. "People contact me and tell me that they really enjoy these compounds, or that a chemical we designed in our lab provided a nice experience, but nobody knows what the long-term effects are. They could cause kidney or liver damage, cancer, or who knows what. It's just a big unknown."

While talking to Nichols, I type "buy MDPV" into a search engine and find dozens of sites selling research chemicals, some of which I don't recognize.

I rattle off a list of compounds for sale from a Chinese lab, including AM-2201, 4-FMA and 6-APB. "6-APB is a compound from my lab," says Nichols with exasperation. He designed 5-APB and 6-APB to test the two oxygen positions in MDA for hallucinogenic receptor affinity, then tested those drugs on rats. When Nichols found that the APBs were hallucinogenic in rat experiments, he published the results. 6-APB never existed before the Nichols lab designed it in 2006 and was never tested on humans, but it has recently been discovered in the wild being sold under the name "Benzo Fury." It comes complete with a logo, a professionally printed foil package and everything else needed for mass-volume retail sales. Another synthetic evolves, grows wings and takes on a life of its own. ✨

[Author's note: As this story was being filed, the United Kingdom passed an emergency 12-month ban on Benzo Fury and 25I-NBOMe.]

James L. Kent is the author of *Psychedelic Information Theory: Shamanism in the Age of Reason* and the host of the *DoseNation.com* podcast.

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Get Vent!

Learning the ins and outs of ventilation and environmental control will keep your bud production at optimal levels all year long.

*Story & Photos
by Erik Biksa*

Clockwise from top: Cannabis crops need a healthy environment to produce heavy yields, and air-cooled lighting helps reduce heat; venting ducts must be secure and leak-free; light-tight deflection spreads fresh air throughout your grow space; tubing from the lung room brings cool air in quickly.

Beating the Heat

Today, it's relatively easy for cannabis growers to provide consistent levels of light for year-round cultivation using artificial sources. But while artificial illumination can give cannabis plants the light they need in the right spectrum and intensity, grow lights often contribute excessive, unwanted levels of heat to the cultivation environment. And if this heat isn't extracted or otherwise addressed, the growroom quickly warms up past the optimal range—hurting growth and even leading to ruined crops in extreme instances.

If money was no object and we didn't live in a world where cops and thieves were out looking for grows to bust or rip off, we could just open a window or perhaps install an industrial-grade cooling system. However, since this isn't the case, we must plan a ventilation system carefully for optimal

and safe marijuana production year-round.

One size rarely fits all, and that's especially true when it comes to an efficient ventilation and cooling system for your growroom. In fact, what counts as "efficient" typically changes with the seasons. For example, growers who want to maintain consistent yield levels throughout the year and also keep a sharp eye on their operating costs may opt for in/out ventilation in the winter months; then, with a few quick changes, they are able to switch to air-cooled lighting assisted by air conditioning in the summertime.

In order to get a better handle on ventilation, let's start with some of the basics and then look at a working model that takes advantage of the several different methods for keeping a growroom cool (and with maximum efficiency) rather than relying on any single one.



Circulate Freely

No matter how you set up your indoor grow, good air circulation is crucial. If you read a lot of cultivation literature, you will see this stated time and time again—and for a very good reason. Plants release water and other vapors through tiny openings in their leaves called stomata (or stomates, if you prefer). They also take in carbon dioxide, which is an essential building block in the synthesis of glucose—the net gain or ultimate “energy food” produced by photosynthesis.

Indoors, if your growing area doesn't have air movement throughout the plant canopy—from one side of the plant to the other (around all sides, preferably) and all the way through from top to bottom—the air can stratify. This means that pockets of stale air develop in the plant canopy,



limiting growth and inviting problems.

Stagnant air in turn creates pockets of moisture on leaves and growroom walls, providing the ideal conditions for plant diseases that can hurt your crop or even wipe you out in extreme cases. Oscillating fans have long been the best solution for this, although in tighter spaces, having several smaller stationary fans or perforated fan-pressurized duct tubing blowing in several directions can create sufficient turbulence, especially with deflection from the walls and other surfaces.

Another important point to remember is that if your plants can release moisture more freely through their leaves while taking in a steady supply of CO₂ (rather than being stifled by stagnant air and excess moisture), they may then absorb more water and nutrients for maximum yield potential.

Stay Cool

Inexperienced indoor or greenhouse growers can easily be caught off guard by just how quickly an enclosed space heats up from high levels of light energy coupled with waste heat from the lighting system. Even if a room is naturally cool to begin with, it can exceed the optimal 75°F to 85°F range surprisingly fast when the lights are on. Most plants begin to suffer in temperatures above 90°F, even if there are higher levels of CO₂ (we'll talk more about that in a bit).

The game also changes seasonally if you rely on outside air to keep your growroom temperatures in check. As a rule of thumb, the outside air you use to ventilate and keep your temperatures optimal should be 10°F to 15°F cooler coming into the room than the temperature you are trying to maintain with the lights on.

Of course, different light sources will cause different spikes in temperature. Usually, this just means a faster air changeover rate is required—and not necessarily colder temps, although cooler, free-flowing air is always a blessing. The level of insulation in your growing area and the surrounding temps can have a noticeable impact, too. Well-insulated grows are more efficient to cool and don't hum anywhere near as loudly, assisting in the stealth factor.

In/Out When It's Chill Out

For the budget-minded grower, in/out ventilation can be a practical and effective solution when the temperatures outside remain below 65°F. This means that in addition to internal air-circulation fans, there are ventilation fans (typically furnace types or inline centrifugal style) that serve to move hot, humidified, CO₂-depleted air out and away, and smaller-capacity fans that introduce fresh, cooler air into the grow environment.

Optimally, the fans run 24/7 and are plugged into a controller—for example, a TV-1 or TV-2, which maintains an idle fan speed but increases or decreases it as conditions dictate. You should also securely suspend ventilation fans from bungee cords or EPDM rubber, since this will greatly cut down on the vibrations and rattling noises travelling throughout the rest of the building from your grow. If you're securing the fans in a grow tent, consider poking a hole in the covering material and securing them to a ceiling joist overhead rather than the frame of the structure—especially if you intend to use activated carbon filters to remove smells from the air.

While in/out ventilation systems can be cost-effective to install and operate, they do have their limitations—including the fact that they move the air from your growroom (and its associated smells) outside of the building you're in. Also, their effectiveness is sensitive to changes in the external environment—something you have little or no control over.

CEA: Getting Serious About Growing

If you aim to maximize indoor medical production and keep it perfectly consistent from crop to crop regardless of outdoor conditions, then CEA (controlled-environment agriculture) is the way to go.

While it's more costly in terms of initial setup (because a serious air conditioner, controlled CO₂ dispersal and dehumidification equipment are required in a room that doesn't directly vent from or to the outside), a lot of growers who make the switch to CEA never look back, because they're too busy getting bigger yields of buds.

Essentially, the air is “engineered” in CEA to meet exact optimal conditions for the different phases of growth. A consistent, healthy environment means steady production rates; couple this with the ability to increase CO₂ above ambient levels—for example, to 1,200 ppm (parts per million)—and it also means the ability



to get up to 30 percent more production out of the same space. Also, growers using CEA are sometimes able to run more lights safely in the same amount of space because they have ample access to electricity as well as the ability to throw down the level of cold air needed to get the job done, above and beyond what can be accomplished using outside air for cooling.

Air-Cooled Lighting for Efficiency

You can't discuss efficient growroom ventilation without discussing air-cooled lighting. While these systems can be laborious to set up and maintain, they definitely remove heat at its source—i.e., high-intensity discharge (HID) lamps—reducing your interior cooling needs by half or even more versus using lights without enclosed air-cooled lamp reflectors.

The larger-diameter straight-through types tend to have more cooling power, but the engineered lenses can spread light better, so look for one that covers both bases well. Vertical air-cooled lamp reflectors are also available, but they can be tricky to install neatly.

Funk Fighters

Growroom air can get funky, whether you vent to the outside or recirculate the air in a CEA setup. To keep the air fresh for any passersby as well as to keep it free of spores, pollen and other contaminants, an activated carbon scrubber is a great choice. However, these scrubbers are only reliable when you install and operate them as directed, with the proper fan sizing and rated maximum humidity levels.

Control Your Destiny

Of course, you will need some controls to run your environment. These can range from simple and inexpensive cooling thermostats, to slightly more sophisticated fan-speed controllers, to total solutions like an NGS (networked growing system), which allows Internet- or network-accessible interfaced controls for all aspects of the grow environment, including temperature, humidity and CO₂ levels. A high-temperature relay switch that shuts off the lights if things get too warm is always recommended; it can prevent crop loss or worse.

The “Three Cs” of the Basic Ventilation Triangle: Circulate air around plants; clean air using scrubbing or filtration; cool air using ventilation and/or air conditioning.

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Putting It All Together

So the promise at the beginning of this article was that we would illustrate how all of these methods can be put together to allow a grower to operate using either in/out ventilation or CEA, with little in the way of changes to the setup required—thereby reducing cooling costs when the outdoor temperatures are favorable, while achieving consistent yields of high-quality medical nuggetry. And since there are plenty of combinations and possibilities for putting together a good working ventilation system (including the “switchable” type we’re about to discuss), this should provide a decent background to create the system that works best for your garden.

First, install or connect a minimum 6-inch-diameter duct port to bring fresh, cool air in, and the same (or, preferably, a slightly larger diameter duct port) to move hot, depleted air out. If you run lots of lights and want to run in/out ventilation as the seasons permit, you will need to go larger than this—but for most folks, this standard should work. (Also, if you are cutting into walls, etc., make sure you know what’s behind them first—i.e., anything like plumbing pipes or electrical wiring.)



De-humidification is necessary for healthy air. Capture and re-use the condensate in your garden for pure and natural living water.

Second, size up the correct volume of air movement you will need from your fans. Usually, a good rule of thumb is a rated 250 cfm (cubic feet per minute) of air movement for every 1,000 watts of lighting. This will keep things optimal

when the outside temps allow for in/out ventilation—and when you run CEA (i.e., a sealed room), these fans and duct ports will handle your air-cooled lighting to maximize cooling efficiency. Naturally, you’ll be connecting your exhaust and intake fans to a controller. Back-draft dampers may be required in some installations.

Third, install an activated carbon filter, firmly anchored into secure ceiling studs, above the plant canopy. It cannot be overemphasized how important it is to have the right fan-to-filter sizing with regard to the fan’s rated cfm capacity. (Your supplier can help you make the right choice if you’re not certain.) You will place the filter before your exhaust fan when running in/out, but disconnect it from the ducting—and use a separate fan to run as a recirculating scrubber—when the garden is operating in CEA mode.

Fourth, install dehumidification equipment if necessary in your climate area; alternatively, install humidifiers and controls. Note that with the right kind of gear, you can collect the condensate and feed it to your plants—pure, living water from the garden back into the garden.

Fifth, install your air conditioning.

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Water-cooled units are the stealthiest and can be installed just about anywhere. They require about 1.5 gpm (gallons per minute) of water flow when operating, so having an abundant and inexpensive source of water may be necessary, though you can run RO (reverse osmosis) wastewater for cooling purposes in some instances from waste-collection tanks. Air-to-air split AC units can also be quite stealthy (and don't require all that water), but they do need the heat exchanger to be installed outside of the building or in a specially built shed. There are models that are available as "triple-split" units that house the noisy compressor elsewhere, so it runs whisper-quiet outside.

Sixth, install your CO₂ system. Gas-fired, water-cooled models are best in the long run for anything bigger than a few 1,000-watt lamps. This system may or may not operate when running in/out, but it will be necessary for CEA mode. As always, follow the safety guidelines religiously with any gas-fired appliance.

Seventh, install horizontal air-cooled lamp reflectors that can be operated with or without ducting and forced fan cooling (i.e., large-diameter duct ports). This way, when you're using the duct ports for the growroom air when it's cold outside,



Having a larger volume of air surrounding your plants creates a healthier place for your buds to breathe, resulting in bigger harvests.

you can operate your reflectors without the ducting. Alternatively, if you can pop the tempered glass lens out (while being able to replace it later), that can work too. When it's hot outside and you want to run CEA, connect the ducting (and

the lenses, if applicable) to the air-cooled lighting system on both the intake and exhaust fan systems; your room will now be running "sealed" because the AC, dehumidifier/humidifier, CO₂ system and controllers will be engineering all of the air, with no outside exchange required.

In Conclusion

There are plenty of ways to apply the principles discussed here to keep your marijuana crop healthy and productive, regardless of what the world outside might be like. But you should never underestimate the value of a good ventilation system when budgeting the construction of your room. A lot of growers tend to blow their load on lighting, only to realize too late that they have dealt with just a part of the equation for achieving a healthy grow.

As a final note, it's typically better to slightly *oversize* your ventilation system, because there is little in the way of machinery that ever operates at 100 percent efficiency. Keep in mind that it's always easier to slow a fan down rather than be forced to find another way to help keep things cool because you've suddenly discovered that your system can't handle the cooling load. ✨

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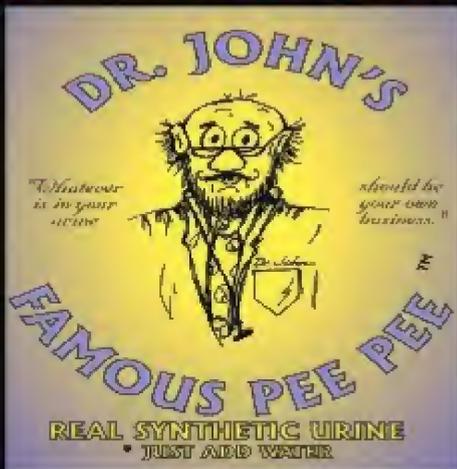
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BY JOE GIAMBRONE
PHOTOS BY KELLY HAYES

ROSS REBAGLIATI

THE HIGH TIMES INTERVIEW

CANADIAN ROSS REBAGLIATI BECAME THE MOST TALKED-ABOUT MAN IN THE WORLD OF SPORTS IN FEBRUARY 1998, WHEN HE WON THE VERY FIRST OLYMPIC GOLD MEDAL FOR SNOWBOARDING—AND THEN LOST IT THE NEXT MORNING, AFTER THE INTERNATIONAL OLYMPIC COMMITTEE FOUND 17.8 NANOGRAMS OF MARIJUANA METABOLITES IN HIS SAMPLES. AS IT HAPPENS, THERE'S QUITE A BIT MORE TO *THAT* STORY.

ROSS BEGAN SNOWBOARDING BACK IN 1988, BEFORE THE SPORT WAS EVEN ORGANIZED; BEFORE THAT, HE HAD COMPETED IN DOWNHILL SKI RACING. IN THE EARLY 1990s, HE JOINED THE WORLD CUP SNOWBOARDING CIRCUIT AND QUICKLY BECAME A TOP CONTENDER IN THE FIELD, WINNING A SERIES OF TITLES OVER THE NEXT SEVERAL YEARS.

TODAY, AS CANADA PRIVATIZES ITS MEDICAL MARIJUANA INDUSTRY, ROSS IS FOUNDING WHAT HE HOPES WILL BECOME A NATIONAL CHAIN OF STORES AND DISPENSARIES. HE ALREADY POSSESSES THE NAME RECOGNITION AND THE STREET CRED TO MOVE TO THE FOREFRONT OF PROVIDING CANADIANS WITH MEDICAL CANNABIS. HIS TEAM IS ASSEMBLED TO MONITOR THE LEGAL CHALLENGES AND SECURE THE CAPITAL NECESSARY TO GET THE BUSINESS LAUNCHED AS SOON AS THE LAWS CHANGE IN 2014. HIS FIRST CANNABIS CAFÉ, ROSS' GOLD, WILL OPEN IN WHISTLER, BC, AND ROSS PLANS TO TWEAK HIS BUSINESS MODEL FURTHER THERE.

BEFORE THIS VENTURE, ROSS RAN FOR A SEAT IN THE CANADIAN PARLIAMENT IN A LONG-DRAWN-OUT CAMPAIGN THAT EVENTUALLY RAN OUT OF FUNDS BEFORE THE ELECTIONS WERE EVEN CALLED. BUT WHILE HE'S NO STRANGER TO CONTROVERSY, ROSS IS AN AFFABLE, POPULAR NATIONAL HERO WHO HAS LONG RESIDED IN HIS HOME BASE OF WHISTLER, THOUGH HE RECENTLY MOVED AWAY FROM THAT SPARSELY POPULATED MOUNTAIN RESORT AFTER MORE THAN 20 YEARS OF SNOWBOARDING FAME.

THE OLYMPIAN WHOM JAY LENO ONCE DUBBED "NICKEL BAGLIATI" IS FINALLY EMBRACING HIS SMOKY IMAGE, WHEN FOR A LONG TIME HE WISHED THAT IT WOULD ALL JUST GO AWAY. BUT THE WORLD THESE DAYS IS A DIFFERENT PLACE THAN IT WAS IN 1998, AND ROSS WAS EAGER TO GET HIS STORY OUT TO *HIGH TIMES*. THE FEELING, OF COURSE, WAS MUTUAL, AS WE WERE PSYCHED TO TALK TO THE FIRST OLYMPIC GOLD MEDALIST TO ENTER THE MEDICAL MARIJUANA BUSINESS.

When you were running for Parliament in Canada, what were you trying to accomplish?

My platform was based around child care and senior care—I wasn't using my association to medical marijuana, you know. Ever since I was at the Olympics 15 years ago, I've been synonymous with [marijuana]. I haven't necessarily gone out to further that association. Fifteen years ago, I probably would have traded a lot for the whole thing to go away. But *now*, um ... it's been enough time. I've come to terms with the shock and awe of it all.

And now you're preparing to open up Ross' Gold, your own cannabis café in Whistler—but what's the plan after that?

Once we've got Whistler set up, we're gonna roll out several other stores across Canada—Vancouver, Toronto, Montreal—and roll into some smaller markets in the future as things progress.

What can people expect when they walk into Ross' Gold?

There will be a coffeeshop, a retail section and a vapor lounge, as well as the doctor's office. You will be able to get a prescription for medical marijuana, and then, at that point, what we will do is refer the client to the federally licensed grower to fill their prescription. So there won't actually be medical marijuana

in the store as far as over-the-counter sales are concerned.

It's like a bring-your-own-bottle kind of thing?

In Canada, there's a minimum age limit of 19. But once you're in, you will be able to hang around, get something to eat, have a coffee, do your emails, watch the big-screen TVs. The vapor lounge is interesting just in the fact that vaporizing the marijuana doesn't effectively burn it. So you're not *smoking* it—you're basically steaming it, and that's how we get around the ban on smoking indoors.

Is there a conflict in Canada between the provinces and the federal level?

There's less of a gray area, although there is one. What we're doing is just falling in line with federal law, regardless of what the provincial status is. The dispensaries that are currently operating in Canada, as in the United States, are actually operating against federal law. But what's gonna come next year is that these newly licensed production facilities will be given a federal license to dispense.

Do you plan on getting in on that end of it, too?

Absolutely. We'll be producing these products here and hiring local people to work on these farms. So it's gonna be really good for the



From gold to green

economy—especially after the last several years of the economy not performing at all and crashing constantly.

On your website, there's a whole section on the health benefits of cannabis.

It's incredible what they've been discovering. These tests have been not performed over the last 40 years on purpose. They found out all kinds of things about Alzheimer's and diabetes. Cannabis is one of the strongest anti-inflammatories ever discovered. The senior population is finally coming around to the idea that maybe all the pharmaceuticals they've been taking are causing more problems than not, and that it might be worth checking out medical marijuana.

Speaking of health benefits, you must have been training pretty hard to become a top snowboarder.

Yeah, it was pretty in-depth stuff. I competed from '88 until '91 just at an amateur level, and then '91, '92, I started the World Cup circuit in Europe. So I did a lot of road biking, I did a lot of weightlifting in the summer. I worked out three days on, one day off, so six days a week, at least two hours each workout ... huge legs, huge pack.

So you arrived at the Olympics, and that must have been something else—that whole experience of you winning the gold, the first snowboarding gold ever.

That was an important feature—to not only win a gold medal, but maybe to be the first one to ever do it for the sport. It was just amazing, just incredible.

But then you got the bad news. How did that arrive?

It was, you know, the next morning. And we're up in our hotel room, up at the ski resort. Yeah, the coaches came in and sent everybody out—except for me.



“We had to go through the court of arbitration. They found that marijuana wasn't on their list of banned substances.”

That's not a good sign.

It was just a big, tense moment. And they told me to sit down, and I go, “Oh, this isn't good.” So they told me that somehow, I had failed my drug test. They basically sent me down there on a bus—definitely a long, long bus ride. I finally got there and the Canadian Olympic Committee had a team waiting for me, and right away it was just paparazzi and, um, intense. Couldn't even get off the bus and get from the bus to the hotel room. It was just typical—like, an Olympic scandal frenzy.

So I finally made it into the hotel—barely—and I had security people around me, and there was just reporters

and cameras in my face and flashes going off. A few hours later, we had to move to a different hotel because they were inundated with people. They had to shut down the hotel. Finally, we got to a different place and started the process of dealing with the Olympic Committee.

Go on.

I told them that I wasn't smoking and that I got it from secondhand smoke, most likely before I came here just over the Christmas break, that I had stopped smoking in April, etc., etc. But it was like a split decision, unfortunately: Half of them bought it and half of them didn't. And normally they don't go

against the athlete in a split decision, so it was kind of groundbreaking that they did. And to make it more interesting, one of the Canadian representatives didn't vote for me either.

Oh, no.

Yeah. So I was kinda, like, *extra* bad.

What about that 17.8-nanogram test? Was that considered a little bit high for secondhand?

Doctors in Canada proved it could *only* have been from secondhand smoke. I can vouch for them that they are 100 percent correct.

Awesome.

But, in any case, we appealed the decision. In the meantime, I kind of got escorted up to the local police station and pretty much interrogated for the rest of the day, for about four or five hours.

They take that very seriously.

Eh, you know, doing their jobs. Nothing there—just another part of the experience. We had to go through the court of arbitration. They found that marijuana wasn't on their list of banned substances.

They finally read their own manual?

Yeah—so that was it, and I got my medal back. So, literally the next day, I was on a flight to Los Angeles to do *The Tonight Show* with Jay Leno.

Is that on YouTube?

Yeah, there's stuff on *SNL*, David Letterman, everybody. I did *Conan* a couple times It was insane, man.

Were they telling you they wanted you in a movie or anything like that?

Oh, yeah.

Did you do any?

Yeah. I don't even remember what it's called. I think Tom Green was in it, and one



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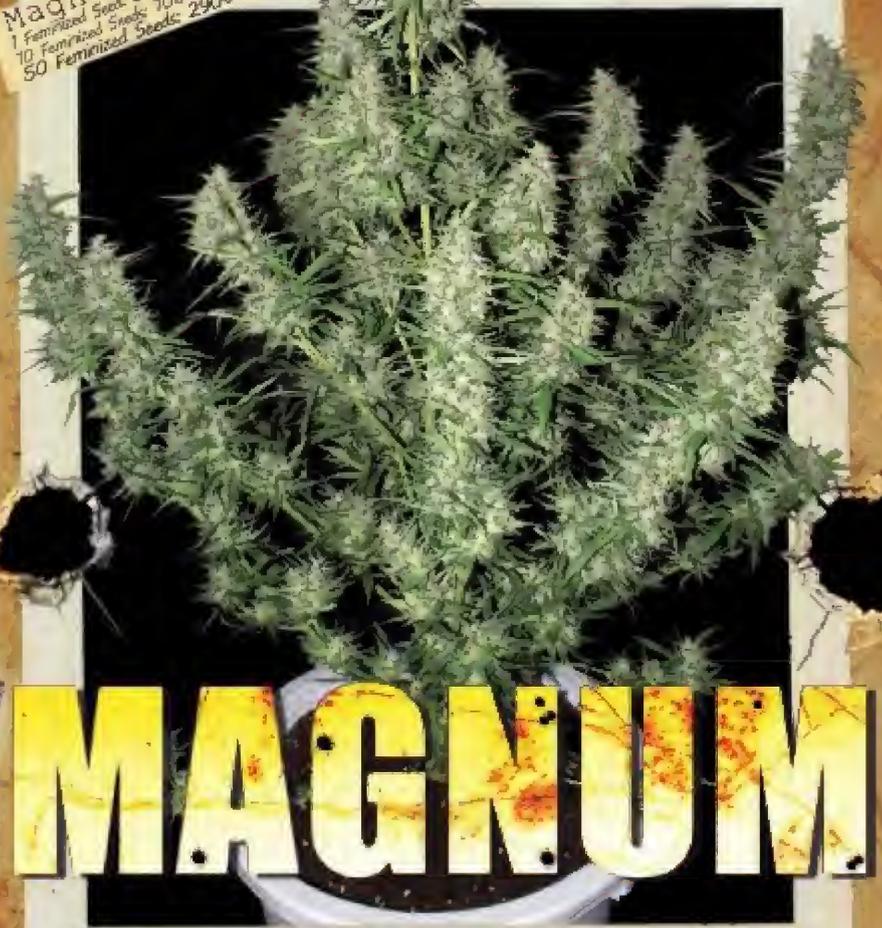


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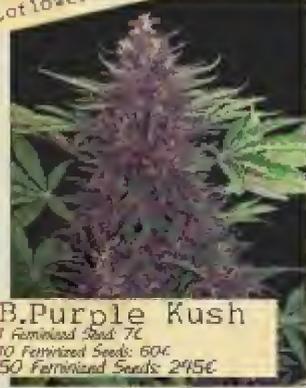
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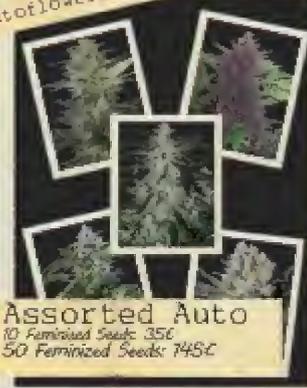
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of the guys from *Jackass*. It was like a snowboard movie.

Snowboard movie. Perfect. [For the record, the title is *Revenge of the Boarding School Dropouts*.]

Yeah, it was one for the history books.

So do you smoke now?
Yep.

How often?
Daily. For me, it's kind of like ... um, I don't know how to describe it: more of a medicinal thing, where it's like having a coffee—sometimes you have one in the morning, sometimes you don't. Sometimes you need one in the middle of the day. It all depends what the situation is.

Are you in favor of legalization for recreational use?
I definitely think it should be legal, and prohibition should be lifted for sure. There's no reason in the world why it shouldn't be.

But there should be some rules to control it, I assume—for minors, that sort of thing?

Yeah, I would expect that—unless you're a minor with a medical condition that requires you to take and use medical marijuana.

Once I heard marijuana was finally being acknowledged as a "performance-enhancing drug," I thought: perfect. That's how I always thought of it, because I used it for playing guitar, doing yoga, tai chi, that sort of thing. It helps me focus on my own body. But then I saw your interview, where you said you did not think it was a performance-enhancing drug.

I don't think it can



"I don't know how to describe it: more of a medicinal thing, where it's like having a coffee—sometimes you have one in the morning, sometimes you don't."

make you run faster. Something that's not controlled by your mind, then it's not performance-enhancing ... so your ability to run fast has nothing to do with whether you're high or not.

Can it help you focus on your performance, though? And block out other distractions?

Marijuana can help you focus on your *training*, focus on going to the gym six days a week and 12 hours a week or whatever it is, and break the monotony and help you recover from your workouts. In that respect, it's performance-enhancing because maybe, indirectly, it *can* make you run faster—because it helps you train more often, because you're not so bored of it all.

Did you smoke marijuana before the Olympics?

Oh, yeah, sure. I started smoking regularly, probably, when I was 20, and of course I was exposed to it in high school. That's kind of normal for BC.

You won a lot of titles back then. Were you using marijuana when you won any of those other ones?

No. I may have used the day before, and I may have used the night after—that sort of thing.

But you made it a point to be completely straight when it was time for the race?

Yeah, I just didn't feel like it. High-level competition, where you have a lot of international teams—there's a lot of money being spent by sponsors. There's a lot at stake. You are *not* at university. And competing at that level, it's not a party—it's very serious, and very, very competitive. I know I've won multiple races by around one-100th or two-100ths of a second.

You thought it might have hindered your performance?

Ummm ... no, it wasn't about my actual ability to race. I was just more comfortable *not* being high around all those people and the TV cameras. There's a time and a place to use, and for me that wasn't one of them.

So the race is the job, and you definitely don't want to mess with that.

You don't want to drink the coffee, and you don't want to smoke the joint.

Have you had any negative experiences with marijuana?

Sure. Lots of times.

Really? What kind?

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SUBJECT: **Male Flowers**

FROM: **Justin Nicholas**

🌿 I've never grown pot before; however, I have grown several other types of plants, trees and veggies and have been very successful outdoors. I know I can do this with just a few plants, but I have a couple of questions:

1) I read a lot about how I must get rid of any male plants in order not to seed my females. How do I spot the males, and could you possibly publish some photos of one so I can see what I'm looking for?

2) On the other hand, don't I need the male plants so I can keep a few seeds for myself?

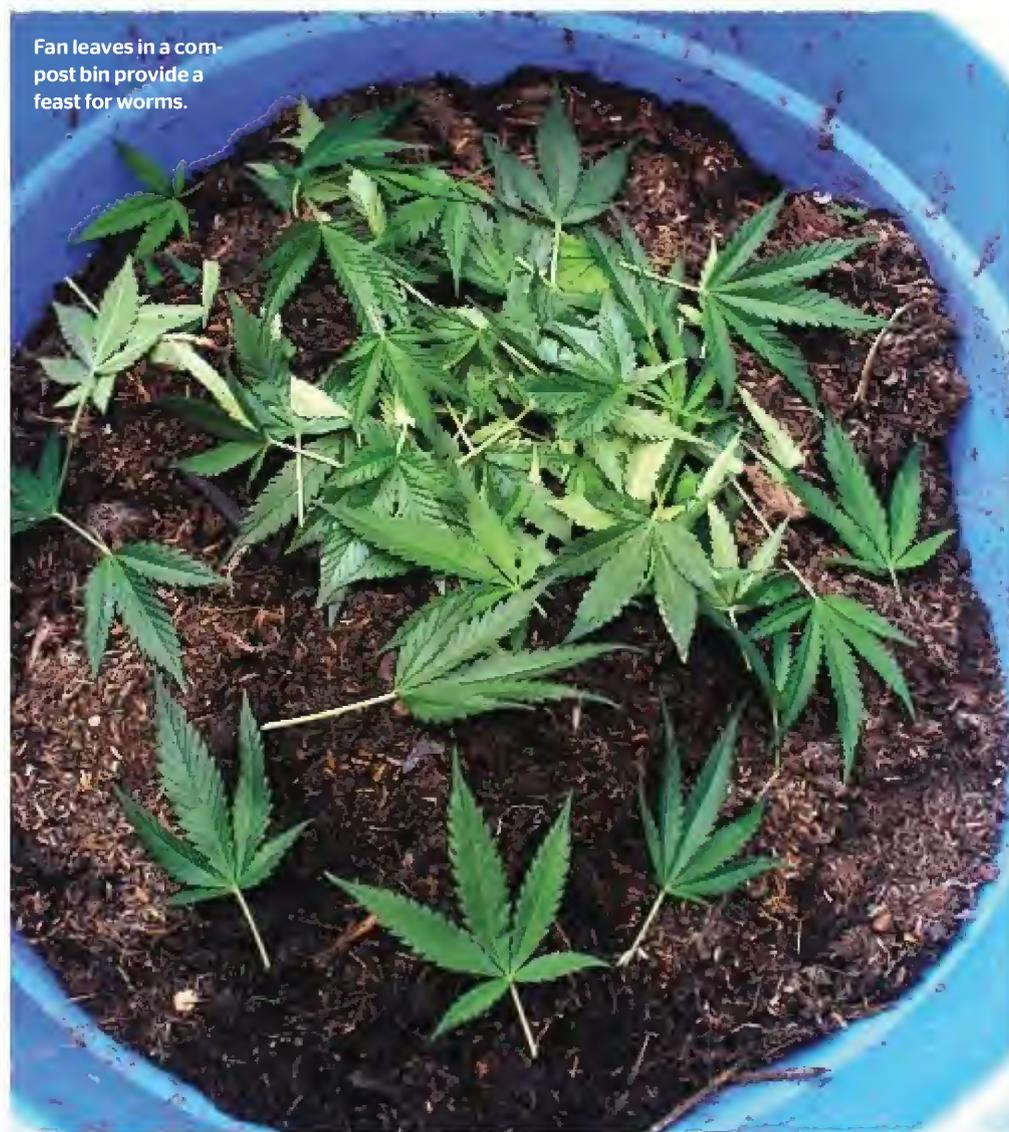
Dear Justin,
Male flowers are easy to spot: They look like tiny bunches of bananas. But be careful—once those “bananas” are hanging down, it means they're about to burst and release pollen. Once that happens, any female flowers in the vicinity will begin forming seeds and eventually be full of them. When we grow female flowers or buds, we keep them away from male pollen in order to keep them seedless (or sinsemilla).

The only reason you would want a male plant around is if you were a professional seed breeder. Otherwise, stick with purchased seeds or clones taken from your mother plants and kill all the males upon determining their sex. It's not worth growing out a whole crop of seeded bud just to experiment with creating your own beans.



Mature male flowers hang down and release pollen.

Danko Tip: A clean growroom is a happy growroom, while a dirty one is an invitation for pests and mold.



Fan leaves in a compost bin provide a feast for worms.

SUBJECT: Nutrients for Specific Strains

FROM: Chuckie Trichome

🌱 I have a newbie grow question for you. I've heard there are certain strains that require a larger or smaller concentration of one (or all) of the three main macronutrients in order to help the plant reach its full potential. I'm wondering if there are any strains that also require different concentrations of micronutrients (or do better in certain grow mediums), and if this is something that would have a significant enough effect to be worth worrying about.

Dear Chuckie,

As you noted, strains do have different nutrient requirements. *Sativa*-dominant strains tend to be lighter feeders than *indicas*, so they need lower quantities (in ppm, or parts per million) of macronutrients (NPK, or nitrogen, phosphorous and potassium) as well as micronutrients.

Some strains—typically *indicas* such

as Hash Plant or Granddaddy Purp—are big nitrogen hogs and require heavier feeding than hybrids or *sativas*. Also, some strains prefer to be watered more often than others. The best way you can determine this is to grow out a strain many times in order to learn its requirements and preferences. Once you get to know a strain, you'll instinctively be able to tell what it's asking for and how much you should provide.

SUBJECT: Beneficial Bacteria

FROM: Jack

🌱 My question is about the use of mycorrhizae as an amendment to my grow mix. I use FoxFarm Ocean Forest in 5-gallon buckets for one grow only and then buy new soil with each new grow. I used to reuse the same soil but found it was riskier doing that versus buying a new batch, even with the occasional fungus gnat

thrown in. (Though my gnat problems have always been very light and in the early stages of development, so I can't say whether the gnats were in the mix when first packaged or picked up later through the small holes in the bags).

My question: Would adding mycorrhizae to new soil with each grow actually help by harvest time? I have heard that the benefits from mycorrhizae are mostly achieved over time, so would it make sense to add additional mycorrhizae even though I only use the soil for a few months? Love #freeweeds—share the grow know!

Dear Jack,

It's probably wise of you not to reuse your soil mix. It's a small price to pay to ensure that all of the necessary nutrients are available to your plants and that you're not bringing any pests or plant diseases into your next grow. Even so, the "spent" soil is still a wonderful additive to your outdoor vegetable garden, so you certainly shouldn't throw it away. Mix it in with your existing garden soil or simply shovel it on top; your flowers, ornamentals, fruits and veggies will love it!

As for adding beneficial bacteria to your FoxFarm Ocean Forest, it isn't necessary. There are plenty of organic nutrients already mixed into the soil, and they're available to the roots immediately. However, it certainly couldn't hurt to mix in a handful of mycorrhizae to help break down food in the soil over time. Your better bet would be to cut three parts Ocean Forest with one part perlite to loosen it up a little and let more air get to the roots. Also, add a small handful of dolomitic lime to each plant to counter the low pH of the soil mix.

SUBJECT: Tea Bagger

FROM: CJ

🌱 Hi, Danny. I have a question and was hoping you could help me out. I'm a big TLO (*True Living Organics*) grower, and I really like to let my dry nutrients bubble around in the reservoir. But people have been telling me to put the nutrients in some nylon pantyhose and drop it in like a teabag. Wouldn't that be bad, though, because you're trapping the nutes? I know you're a busy guy, but any info you have to share would be awesome. Thank you!

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Danko Tip: Use a sharp razor blade when taking cuttings, and cut at a 45-degree angle for the most successful rooting.

Dear CJ,
Congratulations on choosing a wonderful way to grow: True Living Organics is a great organic grow book by The Rev, and it simply means feeding your roots aerated compost teas. In a brewing bucket or reservoir, the “teabag” keeps the chunks of organic compost (worm castings, guano, etc.) from clogging the pumps or aeration stones while still releasing the nutrients and multiplying the beneficial microbes in the tea. So the nutrients aren’t actually trapped; only the larger pieces of organic matter are. The teabag effectively leaches out what you need to feed your plants, allowing you to remove the spent material before it causes problems in your reservoir.

SUBJECT: **Flush Right**

FROM: **Kody H.**

I’ve noticed that the importance of flushing out nutrients at the end of the flowering cycle is massively overlooked. If you want quality buds that make your friends’ mouths water with every hit from the smooth dank bowl, you must flush longer! I’m getting tired of impatient growers cropping out too early or even on time but with no flushing to speak of. This is a serious issue that at least 75 percent of growers overlook. I believe clean bud is 10 times better for your lungs and overall well-being than hot, unflushed bud that burns your chest and tastes terrible regardless of strain. Please publish this letter; this is a way bigger problem than both growers and smokers are willing to admit.

Dear Kody,
I couldn’t have said it better myself! Flushing means leaching the excess nutrients out of your soil mix using plain, pH-balanced water for at least two weeks prior to harvest. Bathtubs and work sinks are best for this: It’s important to use enough water that plenty pours out the bottom of your container, so good drainage is important.

SUBJECT: **Light Switch**

FROM: **Texas Cheesehead**

When switching from veg to the flowering stage, should I immediately switch from



The wattage and amount of grow lighting you use determines your yield.

metal halide (MH) to high-pressure sodium (HPS) grow lights? I also have another question, but keep in mind that it’s just something I randomly thought of while stoned one day. I’ve been thinking about how fast the lights come on. Since the sun comes up gradually, should I increase the intensity of the lights gradually to mimic the sun as it rises? I’ve never read anything about this, but it seems like it would cause less stress on the plants.

Dear TC,
If you have the luxury of using two different grow lights (or a switchable light that converts from MH to HPS bulb), then you should switch them at the same time that you change the lighting schedule to 12 hours on/12 hours off to induce flowering. You could wait a few days if necessary, but you may as well switch them if you can. This shouldn’t discourage growers who can only afford one light, though; I’ve seen great plants grown exclusively under either MH or HPS lamps (as well as LEDs and fluorescents).

As for letting the light build up gradually, high-intensity discharge (HID) lamps such as MH and HPS tend to do this anyway. It takes a few minutes for the lights to reach their full power, and that’s enough for the plants not to get stressed. There are dimmable ballasts on the market, so if you want to experiment with getting the lights up to full power gradually, you can—but I don’t think it will make any ultimate difference in how the plants grow.

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Danko Tip: Brewing beer in your growroom can increase CO₂ levels substantially, but keep all materials out of the light.

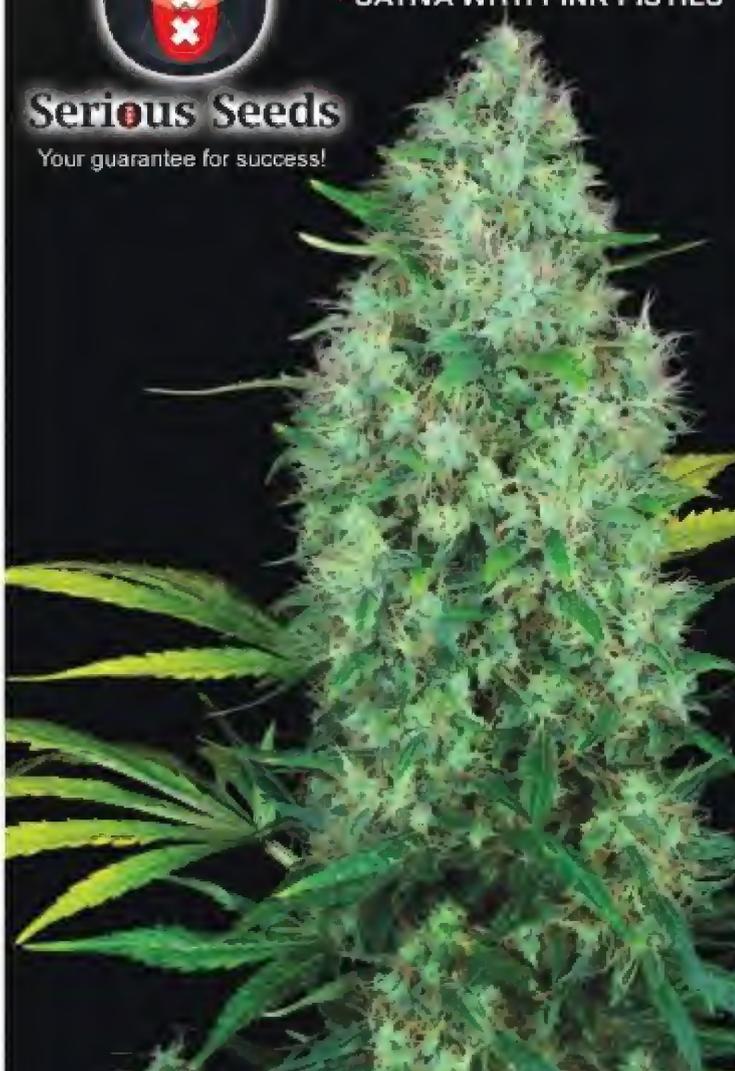
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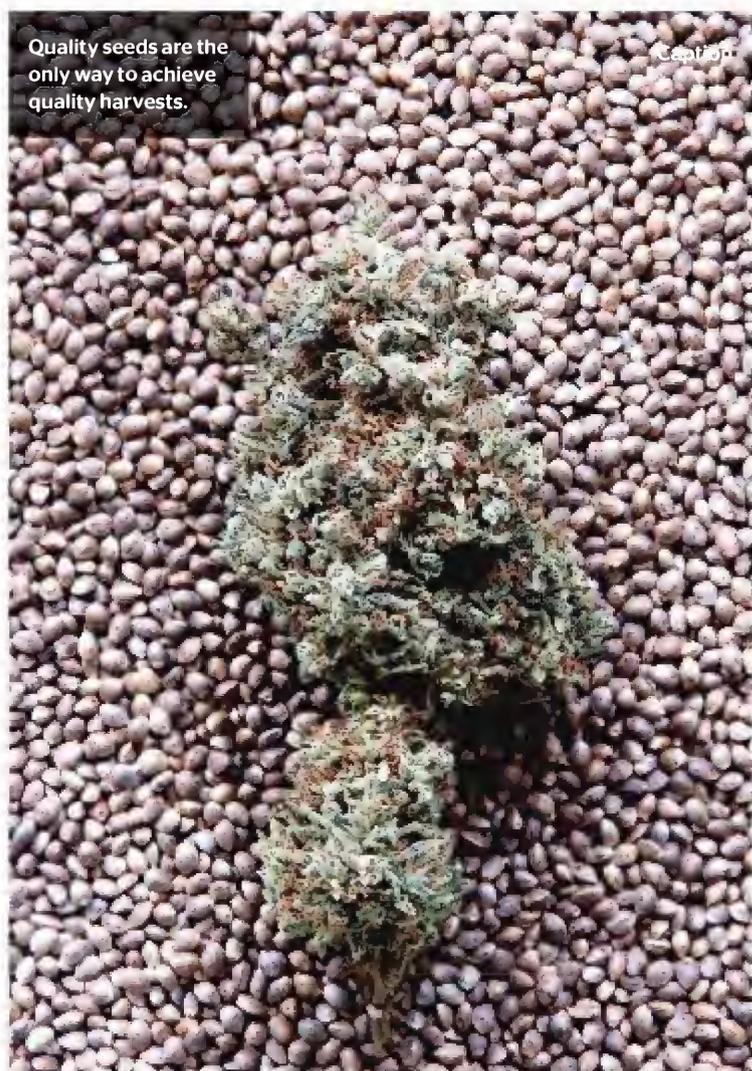
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Caption

SUBJECT: **Shipping Seeds**

FROM: **Wayne**

Hi! I live in the USA and am 64 years old. Can I buy seeds and have them shipped to me?

Dear Wayne,
Hi right back atcha! The seed business is a murky one indeed. Most seed breeders overseas prefer not to ship to the United States, fearing the reach of American prosecutors (and rightly so if you're familiar with the case of Marc Emery, who was extradited to the US from Canada for selling seeds to Americans). This has led to a growing number of retailers or middlemen who purchase wholesale lots of seeds (purportedly from the original breeders) and ship them from countries where the laws against seeds aren't so harsh. The United Kingdom and Spain come to mind as places where this practice has proliferated.

The important thing for you as a purchaser is to do some research on the company and make sure it has a reputation for sending the right seeds and dealing with customer concerns. Steer clear of fly-by-night operations that nobody has heard of and choose a company with years of experience. If I had to name just two, I'd go with Attitude Seeds (*cannabis-seeds-bank.co.uk*) or Seedsman Seeds (*seedsman.com*). Both have over 10 years of successful transactions under their belts. Good luck! 🌱

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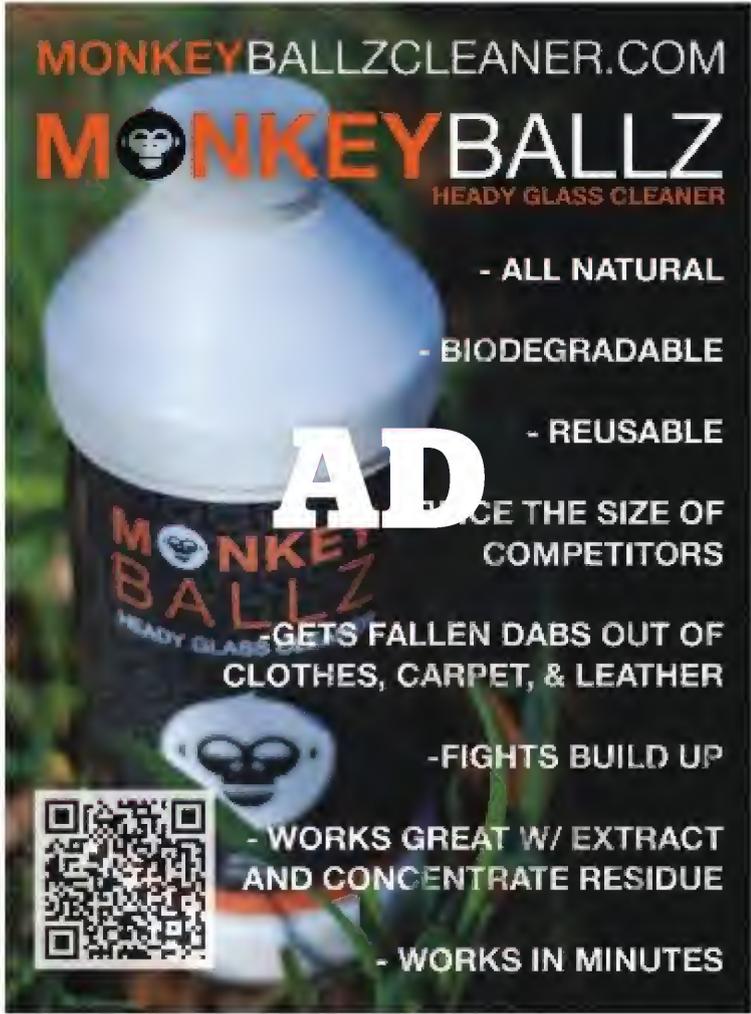
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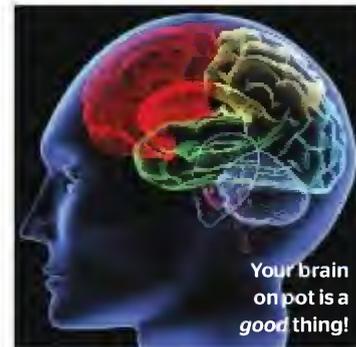
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Got a question for Dr. Mitch? Email him at 420research@gmail.com.

What's the deal with marijuana fixing diabetes?

Sugar Bear

Hi Sugar,
 The media has gotten a little ahead of the science on this. One study shows that cannabis users have 16 percent lower insulin levels than folks who have never touched the plant. This is a big percentage. (Exercise can't lower fasting insulin that much.) Nevertheless, it's just one study. These results certainly should motivate more research. But it's not time for diabetics to toss their insulin and fire up the vaporizer. Given the plant's legendary impact on appetite, diabetics have to be particularly careful that they don't find themselves wolfing down ice cream and cake.



Cannabis may help a great deal in medical operations where blood flow to the brain might be limited.

positive test for pot results in the harshest penalties in sports.

I see a lot of news about THC protecting against brain damage. Is it true?

Dr. Know

Hi Doc,
 We have tons of data suggesting that THC protects against brain damage in animal models of head injury, Parkinson's disease and oxygen deprivation. The newest experiments reveal that it even works at very low doses if it's administered over several days. But the human studies are lagging.

Cannabis may help a great deal in medical operations where blood flow to the brain might be limited; likewise if it's administered after a blow to the head. Ironically, in the NFL, where players routinely get knocked in the noggin, a

Do you get fewer sex questions now that Hyapatia Lee is on board at *High Times*?

Vicki Reams

Hi Vicki,
 I'm delighted that Hyapatia has joined the family of *HT* columnists. I've always been a huge fan of her support for free speech, and she helped me stay out of trouble through adolescence. We both have a lot of Hoosier pride (I got my PhD at Indiana University). But yes, the number of sex questions I receive has dropped to zero. ✨

Mitch Earleywine, PhD, is an associate professor of psychology at SUNY Albany and the author of Understanding Marijuana and The Parents' Guide to Marijuana.

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Ordo ab Chao

Chaos theory, Freemasonry and the ceremonial history of cannabis.

Bring a pot of water slowly to a boil, and something wonderful happens: A grid of vortices appears briefly before the random turbulence erupts. According to chaos theory, systems of energy emerge out of fields of chaos. Isn't it interesting how the cutting edge of science now mirrors the basic tenets of Native American spirituality? Gregory Cajete has written a book on this subject, *Native Science*, which I highly recommend as an introductory course for New Age shamans.

Chaos theory has roots in Freemasonry as well, since Ordo ab Chao ("Order out of chaos") is the motto of the 33rd Degree of the Scottish Rite. The initiation ritual for that degree was traditionally performed in black costumes in a black-draped room adorned with skeletons and scary sigils. The ritual includes many references to the Knights Templar, who were brutally murdered for their gold by King Philip IV of France. So you can see that embedded deep inside the highest levels of Masonry is a realization that the state is not always a friend to spiritual evolution. And that's why Freemasonry is a secret society: to protect its members from the persecution that has so often accompanied new ideas.

I've come to respect Freemasonry because the Masons allowed the Talmud, the King James Bible and the Koran to be placed on their altars at a time when such hybridization was rare. I also enjoy the theater of their rituals, where candles, colors and archetypes play significant roles. But I'll never become a member, as I believe the hybridization of spiritual culture needs to be immensely expanded to include all forms of tribal shamanism.

I study all spiritual cultures and find good and bad in all; I enjoy the poetry and reject the dogma. Freemasonry was responsible for spreading the ideals of the Enlightenment and fomenting revolutions, including our own American

Revolution. And notice that when the Freemasons took over France, they didn't exactly treat the king kindly, which was possibly vengeance for what his predecessor had done to the Templars. Like many mainstream religions, however, Masonry quickly became an important tool for intelligence agencies and evolved to protect and serve the core of what it had been designed to reform.

When ceremonies are working, they create bifurcation points, like those found in water just before boiling. Ceremonies bind people, providing meaning to life and order from chaos. They can also foment tremendous bursts of creativity and insight.

After creating the Cannabis Cup, I felt I had an obligation to study the history of the ceremonial

use of cannabis so I could honor and respect whatever that tradition might be. Imagine my surprise when I discovered cannabis at the root of all the major religions I studied. I've come to view the suppression of this ceremonial history as the key to understanding why mainstream culture is so out of balance.

The plant was considered a symbol of peace, which is why the goddess Germania holds a sword and a stalk of hemp in her hand. When the Romans took control of Christianity in the year 312, a culture for the poor was transformed almost instantly into a culture of empire and mercantilist capitalism. In order to accomplish this, they removed the crucial cannabis sacrament and replaced it with their own sacrament, alcohol. Villages across Europe were forced into converting to Christianity.

But when Germany was unified in 1871, Germania was represented in paintings clutching her sword and a hemp stalk. Even though the cannabis sacrament had been removed for centuries, the old belief in it as a symbol of peace still reigned supreme. ✨



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Rockers of the Earth

Groove metal band Clutch celebrate the release of their 10th studio album.

The online glossary of slang known as *Urban Dictionary* defines the word “clutch” as “coming through when you are needed most in high-pressure situations,” “exactly what you need, when you need it” and even “great, essential, and potent rolled into a single word.” In short, a term for a mere transmission component has, over the last several years, somehow evolved into a synonym for *awesome*. Personally, I directly attribute this leximorphosis to the four gentlemen from Maryland who adopted it as their band’s moniker.

I’ve known Clutch for nearly two decades now, and aside from being one of the tightest, most unique bands around, they’re also some of the most down-to-earth dudes you could hope to meet. Though I’m friendly with all of them, I’ve always had a special bond with guitarist Tim Sult—due in no small part to the fact that he’s the band’s biggest pothead. Over the years, I’ve probably seen Clutch perform more than almost any other band, and each time I always end up getting high with Tim backstage—and usually leaving him with a little something for the road. So last October, when the band decided to throw a secret CMJ listening party to premiere tracks from their 10th studio album, *Earth Rockers*, in a live performance at the Machine Shop rehearsal studios in Belleville, NJ, I wasn’t surprised to learn that I was among the few dozen handpicked press professionals to be invited.

Arriving at the studio, we were treated to a buffet of snacks and coolers full of PBR and Dale’s Pale Ale. Before long, the members of the band began to appear: first vocalist Neil Fallon, then bassist Dan Maines and drummer Jean-Paul Gaster. My pal Tim, however, was nowhere in sight—that is, until studio owner Machine took the mic to introduce the band.

They blasted out six songs from their new album, including the title track, “Crucial Velocity” and “Cyborg Battle.” This was a leaner, meaner Clutch—gone were the organ and harmonica accompaniment from earlier albums, but as



Clutch at the Machine Shop



present as ever were Fallon’s ferocious folk-tale lyrics and Sult’s subtle, sometimes psychedelic solos. The entire event was recorded for posterity; at the bottom of the page, I’ve included a link to a highlights video (if you look closely, you can see me in the background

during a few shots).

After the performance, I finally got to chat with Tim—and with his first words to me, I learned immediately why I hadn’t seen him earlier.

“I have a Volcano,” he bragged matter-of-factly.

“Well, what are we waiting for?” I asked. “Let’s go.”

Five months later, I found myself getting high with Tim again before Clutch’s gig at Austin’s 1100 Warehouse during the SXSW festival. Since they were in town, I was hoping that one of the guys would be able to stop by our Doobie Awards party that Sunday to accept the award for Best Stoner Rock Artist. Unfortunately, they had a gig in New Orleans that day and couldn’t make it, so I held on to their trophy in hopes of presenting it to them at a later date. That opportunity arrived on May 2, when they headlined a show at NYC’s Hammerstein Ballroom with two other Doobie-winning bands that I’m tight with: Maryland reggae rockers Lionize and Austin’s reigning metal gods, The Sword. It was a long, fun night of headbanging and hanging out that was indeed—as *Urban Dictionary* had put it—exactly what I needed, when I needed it.

With that, my ongoing quest to get all of this year’s Doobie Award winners their trophies was nearly complete. Now if I can just get Rush to return my calls ... ✨

Watch video from the party at hightimes.com/earthrockers



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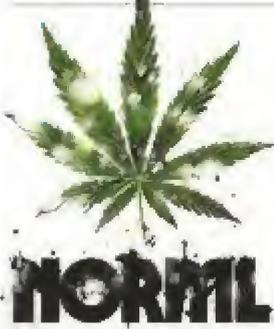
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Marijuana Is Still Illegal

Here are 10 simple ways to avoid arrest.

Despite numerous changes in state law that have enabled medical access to cannabis, decriminalized possession or even made recreational use legal, more than 700,000 people are arrested every year on cannabis-related charges in America—90 percent of them for possession only! Here are 10 ways for cannabis consumers to stay out of harm's way while prohibition still exists.

Don't smoke and drive

Many citizens view their cars as a living room with four wheels, mistakenly believing that the same constitutional rights that protect them against unreasonable search and seizure at home extend to their vehicle. However, drivers and passengers can be exposed to serious invasion of privacy by law enforcement investigating illegal behavior or searching for contraband. Remember, the smell of cannabis is primarily what tips police off and precipitates a search.

Drive a "road-ready" car

Make sure your vehicle is in good shape, with brake lights and turn signals that function properly. Minimize your visibility to law enforcement by avoiding displays that might lead police to believe you have contraband. Meaning: Consider removing all ganja-leaf stickers or any indication that you dig Bob Marley, Phish or the Grateful Dead.

Check yourself when entering a government building

Going into places like courthouses, jails, airports, the DMV or the local federal building with even a small amount of ganja and/or pipe is extremely unwise. If you plan to be

entering a government-controlled area where security screening is common, make sure you're not carrying anything problematic.

Be cautious in the great outdoors

Many pot lovers head into wilderness areas to relax and enjoy Mother Nature. Unfortunately, they become easy pickings for rangers and wildlife wardens with arrest powers. Law enforcement is surprisingly active in state and national parks, and thousands of people are arrested there annually.

Don't boast or flash your stash

Self-restraint is key. Avoid posting photos or videos of cannabis gardens or products online. Police and prosecutors can and do track down the sources of these images.

Think twice before buying online

Law enforcement proactively tries to ensnare people into committing a crime by offering cannabis or seeds on the Web. If an offer to sell cannabis or seeds is sent to you, take a leaf from Nancy Reagan and "Just say no!"

Keep track of your scent

Thousands of pot smokers are busted annually because immediately after smoking or

Allen St. Pierre is the executive director of NORML. Visit norml.org.

handling cannabis, they entered a government building or commercial business (such as a bank, convenience store or restaurant) with the pungent aroma of cannabis trailing them. Here's a sobering fact: There are medical cannabis dispensary owners serving five- to 10-year federal sentences because the money they deposited smelled like cannabis, which led to unwanted investigations.

Party quietly

One of the most common ways that cops discover a person's garden or stash is when they're summoned to investigate a domestic disturbance. Once they're on the scene, almost everything in plain view is subject to inspection. Needless to say, wild parties or too-loud music can also lead to a visit by the police.

Keep it out of sight

Consider using window shades to prevent prying eyes from peeking into your home. Keep your cannabis discreetly tucked away in a drawer or closet. The same thing goes for your car, trailer, campsite, boat, etc.

Don't fit the "arrest stereotype"

It's hard to offer advice on this one. If you're female, middle-aged or a senior citizen, you've got a minor statistical chance of ever getting busted for cannabis use or possession. Over 75 percent of all arrests happen to males between the ages of 15 and 30—especially if you happen to be a minority! ✨

FREEDOM FIGHTER

by Erik Altieri, NORML communications coordinator

Maine-ly Magnificent!

Diane Russell leads the legislative charge for legal cannabis.

Maine State Representative Diane Russell (D-Portland) first took to the front lines of the war on cannabis in 2011, when she introduced a bill to legalize and regulate the adult use and commercial sale of marijuana in her state. Since then, she's proved to be an outspoken and articulate advocate in

favor of ending marijuana prohibition.

Though her 2011 effort didn't pass, it certainly created a very active discussion. Heading back to the drawing board, Russell returned in 2013 with a new bill, LD 1229, and more legislative support, including 35 co-sponsors from all political backgrounds. She made the bill a major



priority and appeared in countless media outlets advocating marijuana legalization. Although LD 1229 didn't receive an "ought to pass" recommendation when it emerged from committee in May, Russell has amended the bill—with some help from her legislative colleagues—and turned it into a straight referendum measure. She's now pushing for it to receive a vote

on the floor of the House. If passed by the legislature, the amended measure would put the simple question of whether marijuana should be legal directly before state voters in the fall. Russell believes the citizens of Maine have a right to voice their opinion on this issue and has urged lawmakers to "let the people decide."

"It is time we let Maine businesses earn the profits," she declares, "not the drug dealers or cartels."



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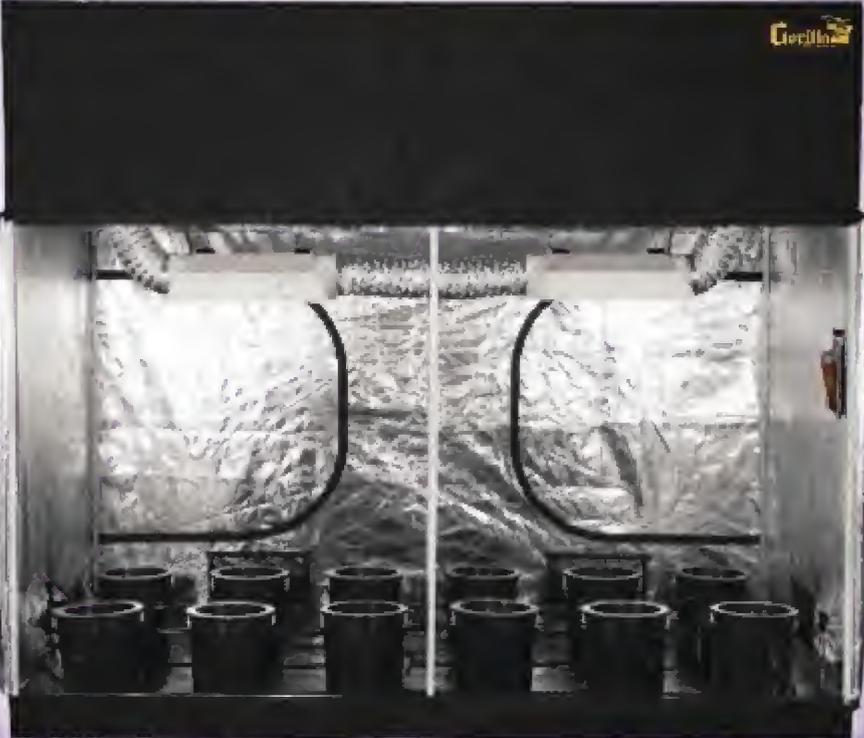
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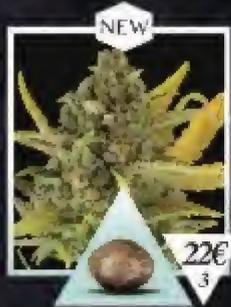
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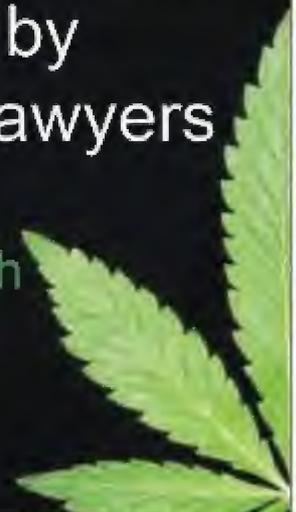
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CLOSE-UP OF THE MONTH

Straight Venom

 The Green Poison with a few more weeks to go, looking amazing as always. Stinky, sticky, skunky. This tested at over 20 percent THC. Grown indoors in a homemade hydro table by breeder/grower Scotty Scotty the Body. We're throwing down here in Oregon. OMMP (Oregon Medical Marijuana Program) patient. *Colby*

PREMIER



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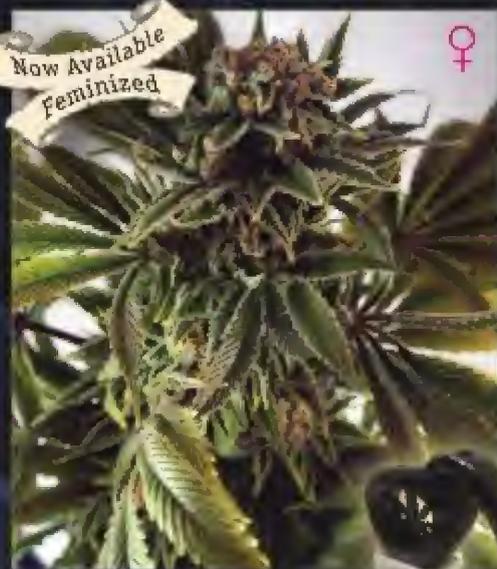
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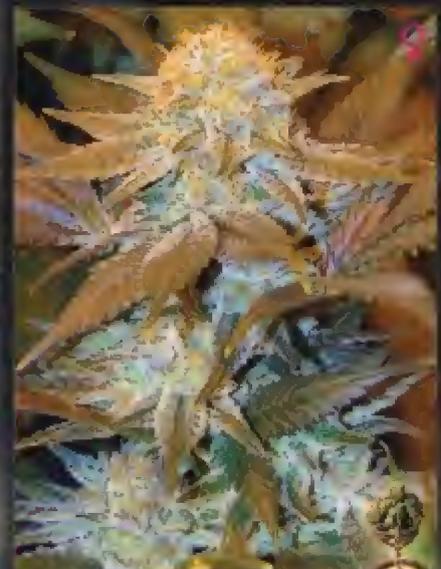
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NUG OF THE MONTH

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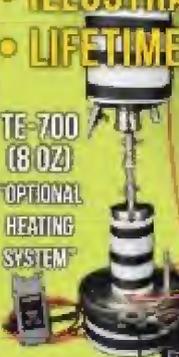
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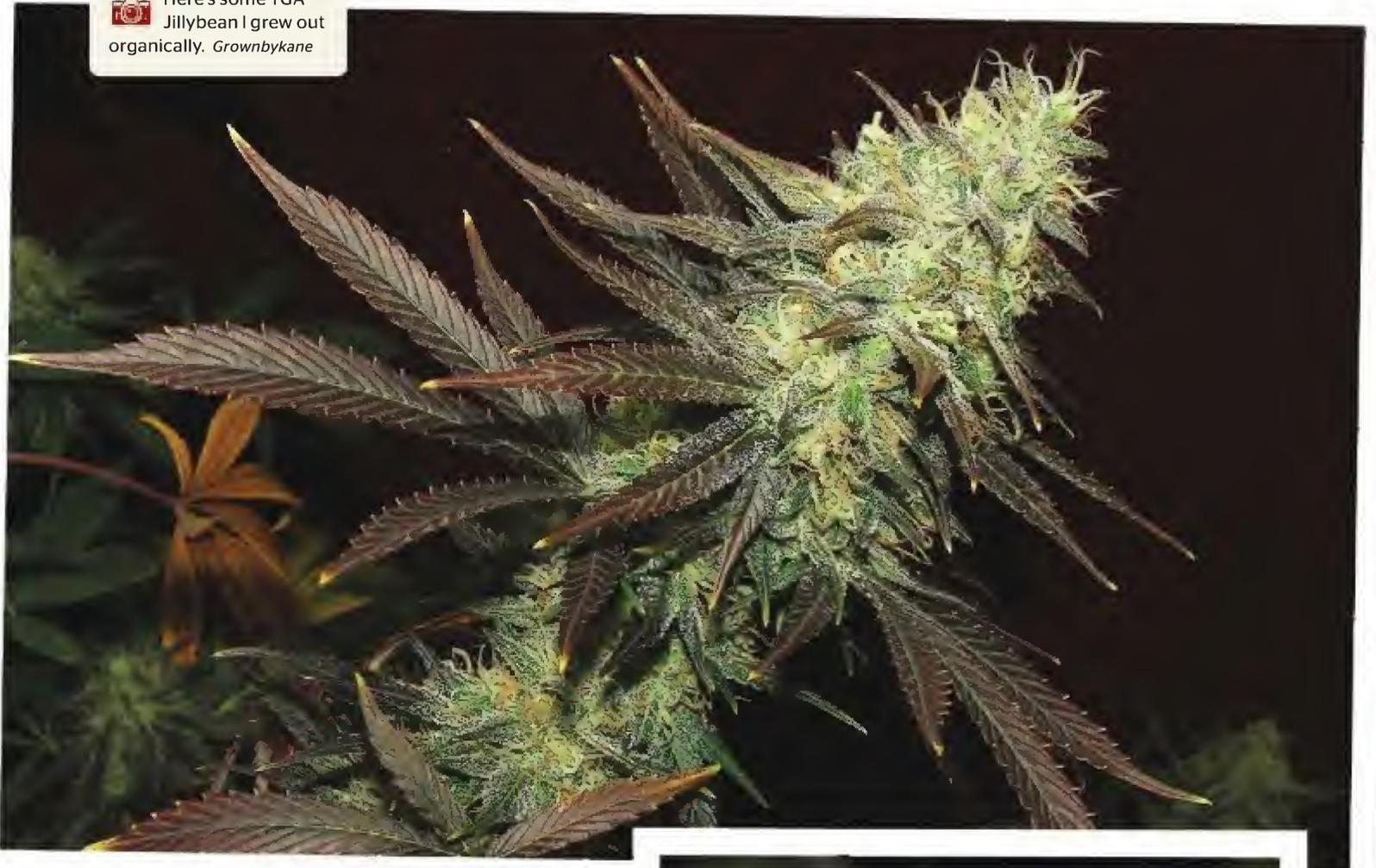
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COLA OF THE MONTH

Healthy Jill

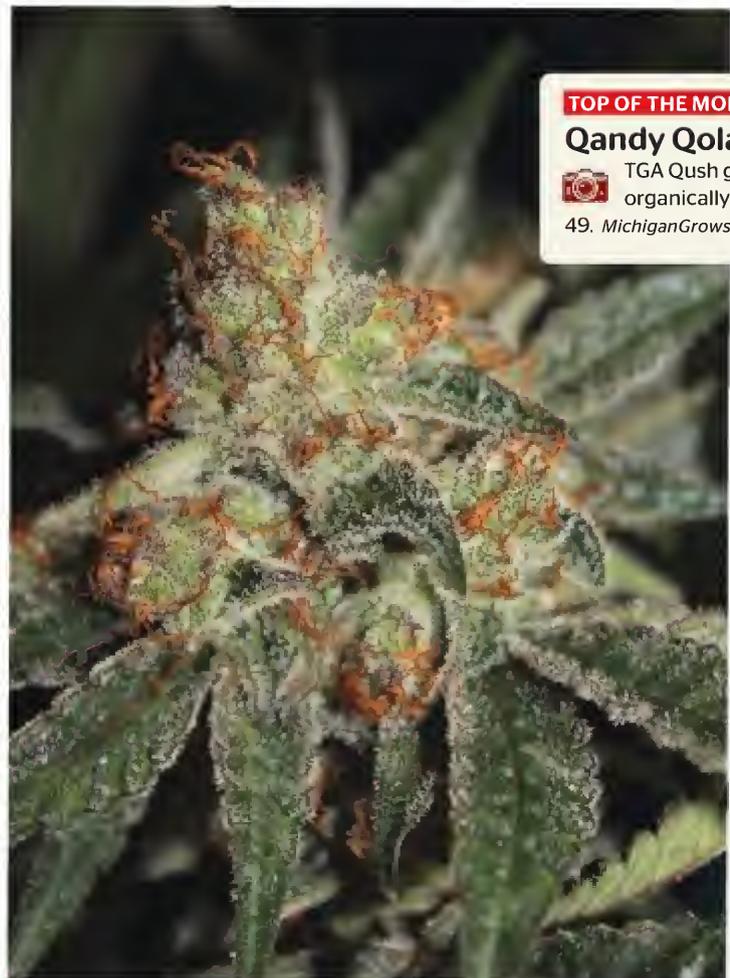
Here's some TGA Jillybean I grew out organically. *Grownbykane*



TOP OF THE MONTH

Qandy Qola

TGA Qush grown organically on day 49. *MichiganGrows*



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Indoor cultivation consultant J. Flava explains how one cultivator without a lot of time on his hands uses inexpensive low-heat fluorescent lighting and automated watering in a system that produces plenty of pot with minimal time and effort.

► The High Times Growbox Buyers Guide

Our cultivation experts review and rate marijuana growboxes and break down their ever-improving technology. Plus, we shine a light on the art of micro-growing.

► Cannabis Artifacts

Check out the fascinating marijuana artifacts we unearthed from Africa and pre-prohibition America. Learn about the evolution of cannabis use throughout the years, from its use as an ancient sacrament and healing potion to its role as a catalyst of modern political movements.

► Pot Scholars at Work

Marijuana expert and author Robert Connell Clark teams up with botany professor Mark D. Merlin to explore the origins and impact of pot on our planet. In an exclusive excerpt from *Cannabis: Evolution and Ethnobotany*, they focus on historical South Asian psychoactive cannabis products.

► The High Times Interview: Vincente Fox

Alarmed by the Drug War that has been ravaged Mexico since he left office in 2006, President Fox has created a broad coalition that includes American pot activists to focus on a singular goal that will help curb cartel violence: Legalizing pot.

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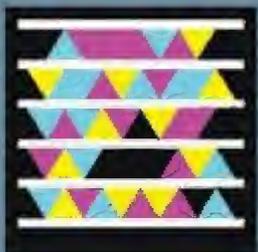
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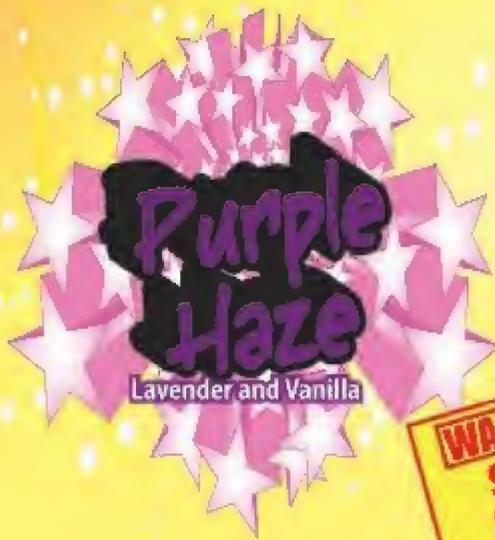
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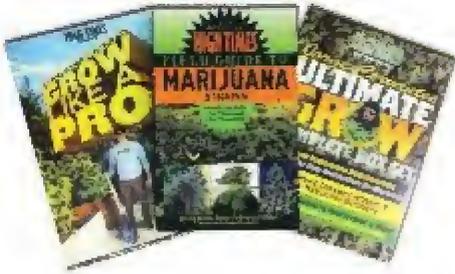
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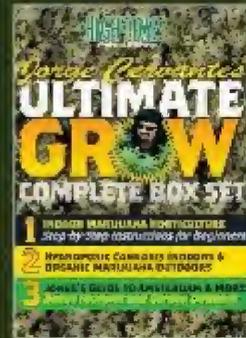


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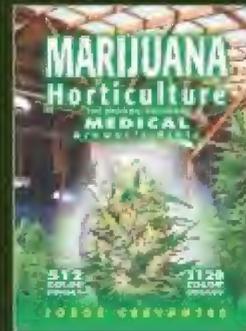


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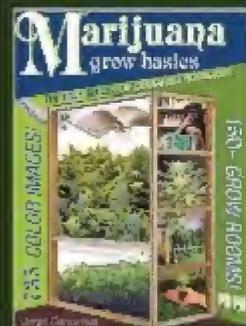
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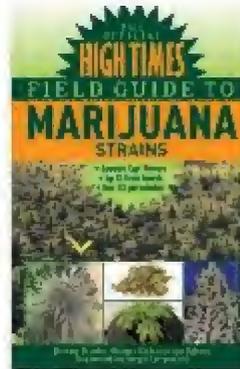


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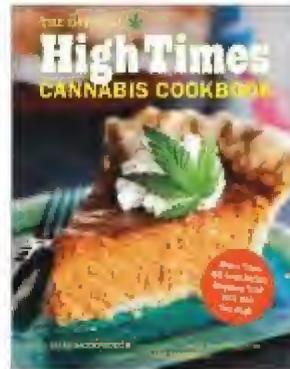


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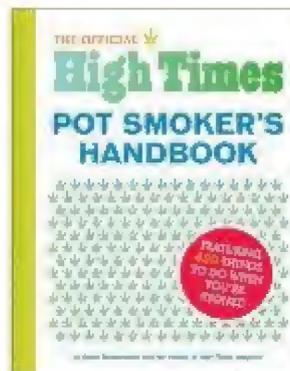
High Times Books



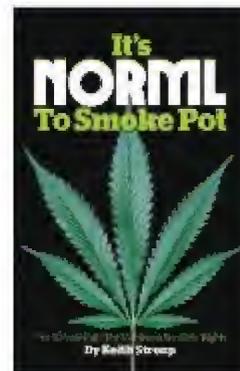
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By Danny Danko
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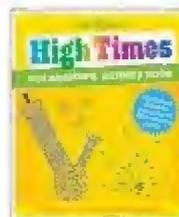
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by Elise McDonough
Go way beyond the brownie and master your munchies with over 50 recipes for stoner cuisine that will get you high—including recipes inspired by Cheech and Chong, Snoop Dogg and Willie Nelson. **\$19.95**



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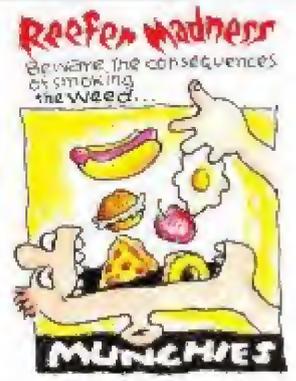
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1 It's **NORMAL** to smoke weed

2 **FREE** Marc Emery

3 Amsterdam Etiquette
hightimes.com/dutchtraveltips
Everybody Smokes vor

4 **TRIP**

5 **weed**



6 **FUCK SPIDER MITES**
Let there be light!
@Jeffersonwafur

7 **eat me**

8 **Beats** by Trey
11 Nico sez
'Grow like a Pro'
Get ready **Seattle!**
The High Times U.S. Cannabis Cup II
cannabis.cup.com

12 **420** around here



13 "This was supposed to be a sports blog... and then I got high."
- Hail Mary Jane

14 **Long Live Gonzo!**
Jack Sprinkle, Florida

15 **Alcohol is the root of all evil.**

16 **Visit the Fatmacy**

17 **Started recreational, ended kinda medical...** (as your apprentice)

18 **Get your shit together Canada**



19 **Peter Tosh**

20 **Jen's** MUSIC STASH
hightimes.com/mestash



21 **NO GOO** don't get stuck!

22 **Dreams Never Die**

23 **prankdab.com**
For all your oil porn needs

24 **Smokin' that OG**
Purple Bubba Tahoe
Larry Chem Valley
Hinda Vanilla KUSH!

25 **WRITE TO POT PRISONERS**

26 **Philadelphia BLUNT**

27 **Support our Troops!**
NEED is great for PTSD

28 **Alcohol is the root of all evil.**

29 **Philadelphia BLUNT**

30 **Dear Danko,** plz. higher me (as your apprentice)

31 **Cultivate copious cannabis**

32 **moke 2 joints @ 8:40**



33 **MEXICALI SAVES BLUES**

34 **DISCO DOGG**

35 **Treebasing**

36 **AMSTERDAM / LOS ANGELES**

37 **Blueberry Bomb**
Just a dab with that

38 **YOUR MOM**

39 **THIS IS NOT THE END. IT IS NOT EVEN THE BEGINNING OF THE END. BUT IT IS THE END OF THE BEGINNING. - CHURCHILL 1942. END RIGHT TRASH! LEGALIZE IT!!!**

40 **Support our Troops!**
NEED is great for PTSD

41 **Support our Troops!**
NEED is great for PTSD

42 **Support our Troops!**
NEED is great for PTSD

43 **Support our Troops!**
NEED is great for PTSD

44 **Support our Troops!**
NEED is great for PTSD

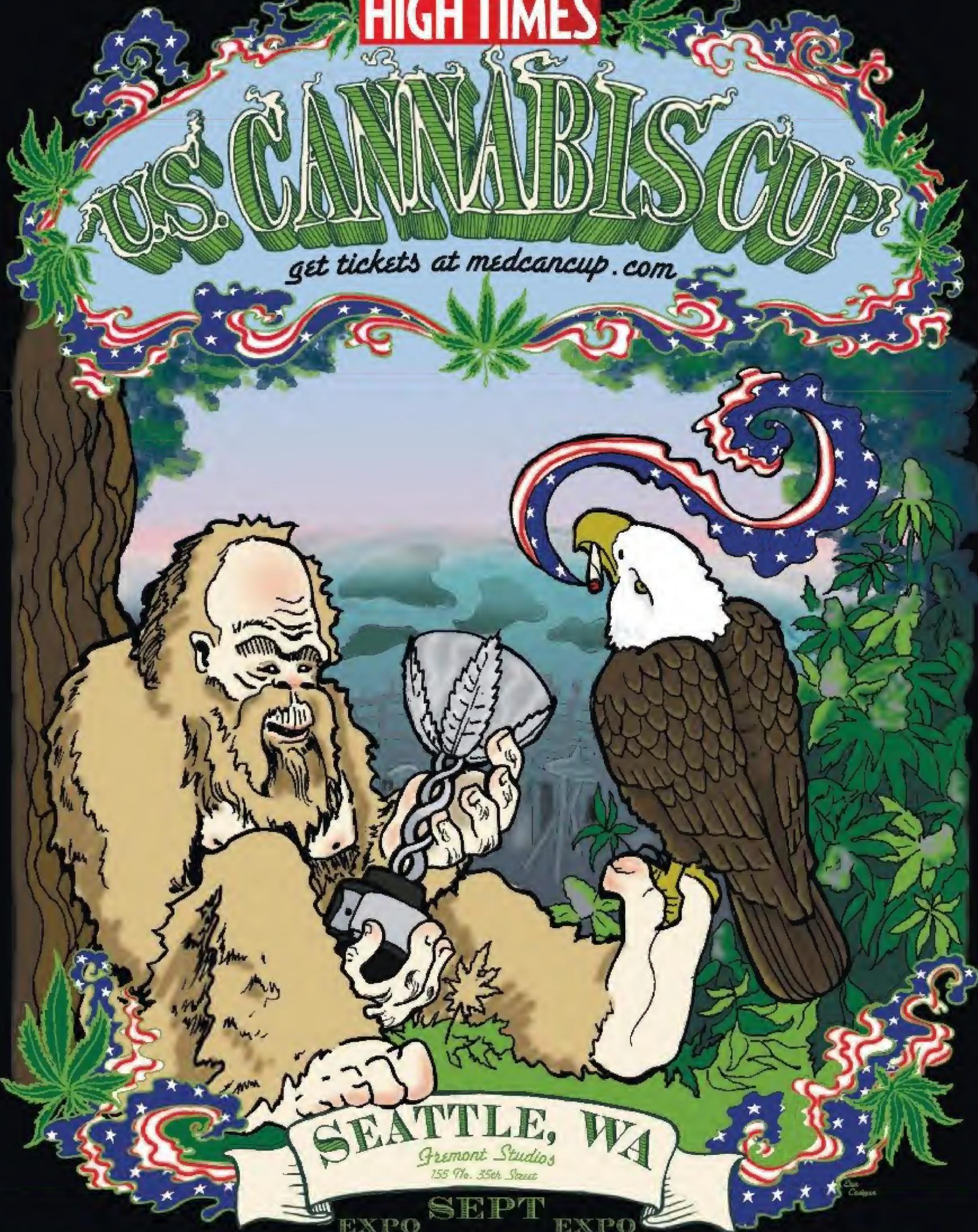
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